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Bruce Joseph Wells
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COPING WITH SOURCES OF ACUTE STRESS IN SPORT: THE ROLE OF COGNITIVE APPRAISAL, PERSONAL DISPOSITIONS, AND SITUATIONAL CHARACTERISTICS

A thesis submitted in fulfilment of the requirements
for the award of the degree of

DOCTOR OF PHILOSOPHY

by

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DEPARTMENT OF PSYCHOLOGY

1995

Declaration

This thesis is submitted in accordance with the regulations of the University of Wollongong in fulfilment of the requirements for the degree of Doctor of Philosophy. I certify that this manuscript is entirely my work. It has not previously been submitted for a degree at another university or institution.

Bruce Joseph Wells

ABSTRACT

The purposes of this thesis, consisting of three studies, were threefold: (1) to examine sources of acute stress in sport, (2) to investigate the effects of personal dispositions and situational appraisals on the coping responses of basketball players, and (3) to study the effects of a stress management training program on the affect, situational appraisals, and perceived coping efficacy of competitive basketball players. In the first study, inductive content analysis procedures from a structured interview with 20 male basketball players identified 25 sources of acute stress. These stressors were placed into five categories: interpersonal conflicts, refereeing decisions, personal performance problems, opposition influences, and team behaviours. A second group of athletes (N = 69) then rated the perceived intensity of each of the 25 acute stressors. Among the most highly rated stressful incidents by the players were "I Miss an Easy Basket," "The Referee Reverses a Decision After Prompting by an Opposing Player," "An Opponent Physically Abuses Me," "I Lose Possession of the Ball to an Opponent," and "I am Responsible for a Turnover." The second part of Study 1 examined the approach and avoidance coping strategies of 360 male basketball players in response to four highly intense stressors commonly experienced during competition. This led to the development of the situation-specific Coping Strategies in Basketball Inventory (CSBI). Post hoc analyses revealed that players employed avoidance coping as often as approach coping when experiencing the stressors, "An Opponent Physically Abuses Me," and "The Referee Makes What I Thought Was a Bad Call on Me." However, when confronted with the stressors, "I Miss an Easy Basket," or "I Lose Possession of the Ball to an Opponent," players used significantly more approach coping than avoidance coping techniques.

In the second study, basketball players' coping responses to four acute stress situations, identified earlier, were examined as a function of situational appraisals (i.e., perceived stress intensity, primary appraisals of threat and challenge, perceived

controllability) and selected personal dispositions (i.e., self-esteem, generalised beliefs of control, monitoring-blunting coping style, approach-avoidance coping style). The consistency of the players' coping responses across the four stressful situations was also examined. The situational appraisal measures were administered to 147 players immediately after they participated in games. Of these players, 86 completed the personal disposition inventories. Findings indicated that players exhibited consistent approach coping responses across certain situations. No evidence was found for cross-situational stability of avoidance coping. Logistic regression models were computed to examine the contribution of personal, as compared to situational, factors in predicting players' situational coping responses. Personal dispositions made a significant contribution in predicting situational coping responses for all of the four situations, whereas situational appraisals accounted for significant amounts of deviance only for the situations, "Missing an Easy Basket," and "Losing the Ball to an Opponent." Both the personal dispositions and the situational appraisals contributed similar proportions of deviance in the prediction of coping for these two situations. Perceptions of stress significantly predicted approach coping responses, while perceptions of control significantly predicted avoidance coping responses. Finally, players' approach and avoidance coping styles emerged as significant predictors of coping responses for all of the situations, thus confirming the utility of assessing an athlete's coping style in acute stress situations. These findings suggest that both personal and situational characteristics should be considered when examining an individual's coping activities in particular stressful encounters.

The third study was designed to investigate the effects of a stress management training program on affect, situational appraisals, and perceived coping efficacy in response to two specific acute stress episodes. After responding to the CSBI, a measure of an individual's coping tendencies, male basketball players ($N = 31$) were assigned to one of three groups: an approach coping group, an avoidance coping group, and a placebo-control group. Over a five-week period, the first two groups received a stress management program, based upon Smith's (1980) Cognitive-Affective Stress Management Training. Experimental subjects were taught to use coping strategies that

were consistent with their coping style. Measures of affect, situational appraisals (i.e., primary appraisals of threat and challenge, perceived controllability), and perceived coping efficacy were collected following each of three games before and after the five-week intervention. Subjects in both experimental groups received handouts and training diary sheets to assist them in using the coping strategies correctly. Results of the study indicated that the avoidance coping group experienced significantly greater improvements for challenge appraisals, perceived controllability, and coping efficacy compared with the control group for the stressor, "Losing the Ball to an Opponent." The approach coping group also recorded greater improvements than the control group for coping efficacy. In response to the stressor, "Missing an Easy Basket," the avoidance coping group demonstrated a significantly greater improvement than the control group for perceived controllability. These findings provide partial support for the presentation of stress management strategies that are compatible with an athlete's coping style, and emphasise the importance of utilising systematic coping routines, manipulation checks, and motivational-control groups in intervention studies. The theoretical and practical implications of the three studies for future research are discussed.

In memory of my loving father, Brian, and in honour of my loving mother, June,

who have been my inspiration

in all that I do

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CHAPTER ONE

INTRODUCTION

Overview of the Problem

Stress is inherent in competitive sport where athletes invest so much time and energy in their long and arduous pursuit of optimal performance. Stressors can be distinguished as either chronic or acute in nature. If stressful experiences are persistent, such as an athlete's poor relationship with his or her coach, the athlete is experiencing chronic stress. Future consequences of chronic stress may include poor performance, burnout, and the athlete's eventual withdrawal from competitive sport (Smith, 1986). On the other hand, being the victim of an opponent's aggression, a close game score, a "poor" officiating judgement, experiencing sudden pain, and committing a physical or mental error are all examples of acute stressors commonly suffered by sport participants. In addition to immediately affecting physiological (e.g., arousal, muscle tension) and cognitive processes (e.g., attentional focus, concentration) (Allport, 1989; Pargman, 1986), repeated exposures to acute stress may produce protracted slumps in performance, demotivation, chronic stress, and burnout (Smith, 1986). Therefore, an important area of study involves the ability to understand the process of coping with acute stress in competitive sport and to develop effective coping strategies.

A constant source of frustration for coaches, athletes, and researchers has been that while some athletes experience sport competition as anxiety provoking (e.g., attempting to attain personal performance goals, concerns about performance success and failure), others perceive the competitive experience as challenging and as a necessary ingredient of optimal arousal and sport performance during a contest. The concept of cognitive appraisal has been identified as a critical factor in determining whether or not these

experiences will become stressors (Lazarus & Folkman, 1984).

Cognitive appraisal refers to a process through which the athlete evaluates the extent to which a particular stressful experience is relevant to his or her well-being. Two forms of appraisal jointly determine the significance of this encounter. In primary appraisal, the athlete evaluates whether he or she has anything at stake. For example, is there the potential for physical or psychological harm? Alternatively, is there a potential for benefit or the opportunity for mastering a skill? In secondary appraisal, the athlete evaluates what, if anything, can be done to control what is happening in the encounter. Once appraisals have been made the athlete then has to decide how to cope or respond to the stressful situation.

Coping has been defined as "constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984, p. 141). Indeed, accumulating research evidence concerned with the effectiveness of stress management interventions in sport suggests that one's choice of using certain coping strategies is a contributing factor in poor performance and sport dissatisfaction (e.g., Crocker, Alderman, & Smith, 1988; Mace & Carroll, 1985; Smith, 1980). Furthermore, as various stressors require new ways of coping, no single coping strategy appears effective for all stressors (Compas, 1987). With this theme in mind, researchers have recently begun exploring whether people are consistent in their choice of coping responses across situations or whether coping is entirely situation-specific. It appears that individuals frequently have coping preferences, called coping styles, employing particular coping techniques consistently when responding to certain stressful situations (Carver, Scheier, & Weintraub, 1989; Edwards & Endler, 1989; Endler & Parker, 1990; Miller & Mangan, 1983). It would also seem that a person's style in coping with stress is strongly linked to reduced anxiety (e.g., Cook, 1985; Miller & Mangan, 1983). From an intervention perspective, if an athlete's personal coping style can be identified, then researchers and coaches would be able to design more effective intervention programs that match learnt coping strategies with one's coping preferences. Furthermore, acknowledging links

between coping styles and coping effectiveness in certain situations may benefit other players who experience difficulties with stressful incidents in competition. While these prospects appear promising, other variables need to be considered if an accurate picture of the stress and coping process is to be made.

Numerous studies suggest that a specific coping strategy cannot be defined as effective or ineffective independent of the context in which it is used. That is, coping effectiveness is dependent on the compatibility between coping strategies and other variables in the stress and coping process, including individual characteristics, situational appraisals, and environmental factors (e.g., Billings & Moos, 1981; Carver et al., 1989; Lazarus & Folkman, 1984; Terry, 1991). Evidence concerning the extent to which each of these factors affects the coping process is still unclear and requires systematic investigation. Also, an individual's cognitive appraisals and his or her choice of coping responses provide two avenues for program treatment in the coping process. For this purpose, it would be useful if one was able to predict the likelihood of an individual using preferred coping strategies in particular situations. Such information could enable athletes to examine the effectiveness of their coping strategies, and, if necessary, to adopt more efficient coping behaviours in future contests. Therefore, one of the primary purposes of this thesis was to generate a coping style inventory that would identify an athlete's disposition in coping with various sources of acute stress.

Significance of This Thesis Research

The 1980s has witnessed a burgeoning of research on coping in the coping literature. Stimulated by a growing conviction that coping is a major factor in the relation between stressful events and an individual's psychosocial adaptation, a wide range of medical and social science disciplines are currently examining stress and coping processes. Similarly, examinations have been conducted in organised athletic competition. These studies have confirmed a plethora of anecdotal reports that stress in competitive sport can impede the athlete's optimal performance (e.g., Burton, 1988;

Gould, Petlichkoff, Simons, & Vevera, 1987) as well as his or her physiological, emotional, and psychological well-being (e.g., Cohn, 1990; Gould, Horn, & Spreeman, 1983). Despite these investigations, coping in sport has only recently attracted the attention of researchers. Consequently, by studying the critical coping processes involved in sport-related stress, researchers may implement more effective coping skills training programs. Typically, these programs help athletes acquire, develop, practise, and apply appropriate coping strategies to help reduce or eliminate sources of, or adverse reactions to, stress encountered during competition (e.g., Meichenbaum, 1985; Smith, 1986).

Current theory and research examining the relationship between stressful events and outcomes such as anxiety, depression, psychological distress, and somatic complaints (e.g., Billings & Moos, 1981; Pearlin & Schooler, 1978) support the transactional model for coping (Lazarus & Folkman, 1984). In the transactional model, coping entails the complex interplay of several different factors including the source of the stressor, the individual's cognitive appraisal of the event, personal dispositions, situational characteristics of the stressful event, and sociodemographic factors (e.g., Holahan & Moos, 1987; Lazarus & Folkman, 1984; Parkes, 1986). In spite of the numerous studies that have focused on each of the determinants of coping, there exists limited knowledge about the linkages among these components and their relative importance for subsequent adaptation in a sport context.

Researchers now believe that prior to assessing coping effectiveness and designing therapeutic interventions in response to stress, a better understanding of the personal and situational contexts in which coping strategies are used is needed. This will be best achieved utilising the transactional model, that is, an integrated approach that takes into account multiple aspects of the stress and coping process. Of particular importance in the transactional model is the role of situational factors and the person's appraisals of a stimulus or event in shaping coping strategies. Subjective appraisals and coping responses offer two potential points for intervention, and yet, there has been a lack of research that has simultaneously examined the role of different dispositional, situational,

and appraisal variables as predictors of coping activities and adaptation.

Other researchers have advocated adopting situation- and profession-specific approaches in the study of stress and coping (e.g., Krohne, 1988; Larsson, Kempe, & Starrin, 1988; Roth & Cohen, 1986). For example, Krohne believed that the major problem with research on coping in the area of sport was the specificity of stress-relevant factors in the different sports. To avoid these complexities, he recommended that research and application proceed along the lines of a sport-specific approach. Similarly, Roth and Cohen stated that "It is important to study one stress or trauma at a time and follow the coping processes over time" (p. 818). Accordingly, a study investigating effective coping strategies and their antecedents should proceed in the context of the evaluation of the process of coping with individual stressors in specific situations.

One issue that has received much research attention as an antecedent to the consistent use of coping strategies is examining a person's coping style. General personal dispositions may be manifest in the choice of specific coping activities in a particular situation. Thus, a particularly important aspect of examining responses to stressful incidents is to identify coping strategies that are most functional in meeting personal and situational needs. Evidence suggests that coping effectiveness may be partly influenced by the compatibility between a person's coping style and his or her actual coping response to a stressor (Miller & Mangan, 1983). An examination of the literature on coping styles indicates two basic modes of coping with stress, approach and avoidance (Roth & Cohen, 1986). The authors outlined their "ideal" scenario for coping with stress where both modes of coping were mobilised, with the benefits of each style realised and the costs of each style minimised. Although evidence supporting the existence of coping styles is equivocal, the implications for interventions are apparent. Each coping strategy or set of coping techniques has its own advantages and disadvantages. These techniques can be incorporated into the athlete's coping repertoire after considering his or her disposition for coping (i.e., coping style), the sport type, and the situation.

When identifying the coping strategies a person uses in a particular situation, a survey is generated that asks the person about the thoughts and actions the person uses to deal with a given stressful situation and its emotional concomitants. Krohne (1993) observed that the most common procedure involved grouping the individual coping strategies, on the basis of statistical (generally factor-analytical) classifications, into superordinate units (e.g., Crocker, 1992; Folkman & Lazarus, 1980; McCrae, 1984; Madden, Summers, & Brown, 1990). Such classifications are relatively arbitrary and often have little connection to the theoretical model the author has advanced for his or her empirical work. For the appropriate use and interpretation of factor analysis (FA), Krohne offers the following suggestions: (a) that FA be carried out on the basis of theoretical assumptions, and (b) that the classifications arising from FA be related to those same theoretical assumptions (e.g., to modify or dismiss them). Thus, future coping inventories are needed that are based on both theoretical deductions and empirical calculations. The purpose of such inventories would be to establish which types of coping strategies are optimal in a range of different situations thus contributing to more effective stress management programs.

Although researchers have developed numerous stress management programs that assist athletes in dealing with chronic stress, programs specific to responding to acute stressors are relatively few (Anshel, 1990a; Johnston & McCabe, 1993; Kirschenbaum, Wittrock, Smith, & Manson, 1984). Moreover, with the exception of Anshel's COPE model, these programs are not based on the transactional model of stress and coping and, therefore, do not take account of person and situation variables. Many researchers have emphasised the importance of organising and implementing intervention programs around the individual characteristics of the athlete (e.g., Chen & Singer, 1992; Haslam, 1990; Weinberg & Williams, 1993). Although some efforts have been made to consider individual differences when instructing athletes in the use of coping strategies (e.g., Anshel & Singer, 1980; Seabourne, Weinberg, Jackson, & Suinn, 1985), a common limitation of past stress management programs has been the failure to consider coping dispositions as predictors of an individual's amenability to different intervention

approaches (Anshel, 1990a). Ludwick-Rosenthal and Neufeld (1988), for example, acknowledged that this line of research could lead to the identification of personal dispositions that could be used to select particular stress management interventions involving coping strategies most compatible with the individual's resources or dispositions. Once all of the aspects pertaining to a transactional view of stress have been measured, players can be offered intervention programs which enable them to cope more effectively with specific stressors. As Smith (1985) stated, "Progress in sport psychology particularly in studying competitive stress....will most readily be advanced by interrelated advances at the theoretical, empirical, and intervention levels" (p. 111).

Therefore, the purposes of the present thesis were: (a) to provide an insight into the coping process in sport, specifically with competitive basketball players during acute stress situations, (b) to clarify the role of personal dispositions and situational appraisals in predicting coping responses, particularly with respect to the identification of athletes' coping style, (c) to generate an instrument which is both reliable and valid for describing an athlete's coping style, and (d) to develop a stress management package which takes into account the personal dispositions and situational appraisals that contribute to successful coping in response to various acute stressors in sport competition.

Research Purposes

Study 1: Sources of and Responses to Acute Stress of Competitive Basketball Players

The purposes of the first study were:

1. To identify sources of high acute stress occurring during a basketball game experienced by competitive basketball athletes.

2. To examine how basketball players cope with acute stress by developing an inventory to assess a player's predisposition, or preference, for coping to a variety of acute

stressors, a concept referred to as coping style.

Study 2: Predictors of Coping With Sources of Acute Stress: The Role of Personal Dispositions and Situational Appraisals

The purposes of this study were:

1. To determine whether basketball players exhibit consistency in coping responses across different acute stressors.

2. To examine the role of selected personal dispositions and situational appraisals on subjects' selection of coping responses. Personal dispositions consisted of self-esteem, generalised control beliefs, and coping styles (i.e., approach-avoidance, monitoring-blunting). Situational appraisals included perceived stress intensity, primary appraisals, and perceived controllability.

Study 3: The Effectiveness of Stress Management Training on Affect, Situational Appraisals, and Coping Efficacy of Competitive Basketball Players

The purposes of the third study were:

1. To investigate the effectiveness of a stress management program incorporating an approach-avoidance dichotomy of coping strategies on the affect, situational appraisals (i.e., primary appraisals of threat and challenge, perceived control), and coping efficacy of male basketball players.

2. To address individual differences in managing stress by providing subjects with intervention programs compatible with their coping style.

Research Hypotheses

Study 1: Sources of and Responses to Acute Stress of Competitive Basketball Players

1. As indicated earlier, the first part of this study was to identify high intensity sources of acute stress experienced during a basketball game. There were no predictions due to the exploratory nature of this study.

When designing a stress management program for a particular population, typically the first step is to identify sources of stress that affect individuals that represent that population. Further, Krohne (1988) supported the specificity of stress-relevant factors and coping strategies in different sports. This specificity is reflected in the myriad studies which have examined sources of stress with athletic populations (e.g., Cohn, 1990; Kaissidis & Anshel, 1993; Scanlan, Stein, & Ravizza, 1991). Consequently, research and application should proceed by examining sports separately.

2. It was predicted that the coping responses generated in this study would consist of either approach or avoidance coping styles.

The approach-avoidance dimension is well-grounded in the coping literature, and has been formulated in terms of monitoring versus blunting (Miller, 1980), attention versus rejection (Mullen & Suls, 1982), denial versus intrusion (Zilberg, Weiss, & Horowitz, 1982), avoidance versus vigilance (Krohne, 1989), engagement versus disengagement (Tobin, Holroyd, Reynolds, & Wigal, 1989), and active versus passive styles (Zautra & Wrabetz, 1991). Other recent studies have also lent support to these similar dimensions (Cook, 1985; Roth & Cohen, 1986).

Study 2: Predictors of Coping With Sources of Acute Stress: The Role of Personal Dispositions and Situational Appraisals

It was hypothesised that:

1. Players would vary their coping responses across different acute stressful situations.

This prediction was based on previous studies that have shown low consistency in the use of the same coping strategies across different situational contexts (e.g., Averill & Rosenn, 1972; Bouffard & Crocker, 1992; Compas, Forsythe, & Wagner, 1988). For example, in response to two ongoing stressors (academic and interpersonal) Compas et al. reported that subjects displayed low consistency across the two different types of stress. In addition, Bouffard and Crocker found that individuals with physical disabilities did not consistently use the same coping strategies across different settings.

2. Personal dispositions and situational appraisals would each make a significant incremental contribution to predicting coping responses.

   a. Personal dispositions and situational appraisals would each be significantly related to coping strategies.
   b. Situational appraisals would be more influential than personal dispositions in predicting coping responses.

These hypotheses were based on studies that recognised the contribution of both personal dispositions and situational appraisals in explaining and predicting coping strategies with an emphasis on situational appraisals in the coping process (e.g., Fleishman, 1984; Folkman & Lazarus, 1980; Folkman, Lazarus, Gruen, & DeLongis, 1986a; Holahan & Moos, 1987). Situational appraisals including cognitive appraisals and the perceived stressful demands of a situation, are considered to play a more important role than dispositions in shaping the coping strategies individuals use.

3. An athlete's coping style would significantly predict his situation-specific coping response. In particular, athletes possessing an approach coping style were expected to use approach coping responses, whereas athletes with an avoidance coping style would use avoidance coping responses.

The benefits of being able to predict an individual's coping response before the event lie in the greater effectiveness of individualised stress management programs. Thus, inventories are needed that are able to measure an athlete's coping style as well as his or her situational coping response. For example, Carver et al. (1989) devised an inventory that retained the content of the behaviour described in the items, but altered the frame of reference for that behaviour depending on whether coping styles or situational responses were being assessed. The researchers reported low to moderate correlations between the dispositional and situational measures. In a later study, Carver and Scheier (1994) observed stronger associations between coping dispositions and situational coping responses when all the subjects responded to the same situation. Thus, strong associations between dispositional coping styles and comparable coping acts were expected in the second study.

4. Situational appraisals would be related to athletes' coping responses.

a. Perceived stress would significantly predict approach coping responses.

Evidence for this proposal has been mixed. Some studies have supported this hypothesis (e.g., Madden et al., 1990; Miller, 1989; Miller & Mangan, 1983), while other studies have reported evidence for the opposite pattern (e.g., Anderson, 1977; Endler & Parker, 1990), and still others have produced null effects (e.g., Billings & Moos, 1981; Mattlin, Wethington, & Kessler, 1990; Terry, 1994). Nevertheless, research by Madden et al. suggested that in a sporting context the greater the degree of stress the greater the need to implement active coping strategies.

b. Perceived challenge would significantly predict the use of approach coping responses, whereas perceived threat would significantly predict the use of avoidance coping responses.

Studies by McCrae (1984) and Folkman and Lazarus (1985) led to the formation of this hypothesis. Avoidance-related strategies such as wishful thinking and seeking social support have been linked to threat emotions, whereas approach-related strategies including rational action, perseverence, and problem-focused coping have been related to challenge emotions.

c. Perceived controllability would significantly predict approach coping responses.

Numerous studies have shown that one's choice of coping strategies appears to differ for events appraised as controllable versus uncontrollable (e.g., Carver et al., 1989; Folkman & Lazarus, 1980; Forsythe & Compas, 1987). These studies demonstrated that problem-focused coping strategies were used in situations judged to be amenable to control, whereas emotion-focused strategies were used more in situations appraised as having little potential for control. Furthermore, Carver et al. found that active coping strategies were positively associated with perceived controllability, while low controllability over the situation resulted in the greater use of strategies such as denial and disengagement.

5. Selected personal dispositions would be related to athletes' coping styles.

a. High self-esteem and beliefs of an internal locus of control would be positively related to an approach coping style, and negatively related to an avoidance coping style.

Numerous researchers have emphasised the relevance of self-esteem and locus of control in predicting the use of selected coping strategies (e.g., Carver et al., 1989; Parkes, 1984). For example, Carver et al. and Scheier, Weintraub, and Carver (1986) demonstrated that high self-esteem and internal control beliefs are associated with active as opposed to avoidance coping efforts. On the other hand, denial and behavioural disengagement have been found to be negatively related to these dispositions.

b. Monitoring and approach coping styles would be positively correlated as would blunting and avoidance coping styles.

Although evidence for this hypothesis is equivocal, with some studies showing support (e.g., Kaissidis, 1993) and others showing no support (e.g., Carver et al.,

1989), Miller's (1987) monitoring and blunting dimensions are theoretically similar to the approach-avoidance formulation of coping.

6. Perceived controllability would be negatively correlated with both perceptions of stress intensity and threat appraisals, and positively correlated with challenge appraisals.

These predictions were derived from Lazarus and Folkman's (1984) cognitive-phenomenological model of stress which recognises the mediating effect of perceived control on the relationship between various situational appraisals. Accordingly, studies have shown that, in general, believing an event is controllable leads to a reduction in stress (e.g., Madden et al., 1990; Terry, 1991, 1994). Other studies have found that when students undertaking an exam considered the situation controllable, they experienced intense positive emotions (challenge) and reduced negative emotions (threat) (Carver & Scheier, 1994; Folkman & Lazarus, 1985). However, evidence that control can be stress inducing in certain situations exists too (Miller & Mangan, 1983; Thompson, 1981).

Study 3: The Effectiveness of Stress Management Training on Affect, Situational Appraisals, and Coping Efficacy of Competitive Basketball Players

It was hypothesised that:

1. Two groups that were exposed to the stress management intervention, as compared to the control group, would report:
   a. Increased positive affect, challenge appraisals, and coping efficacy; and
   b. Decreased negative affect and threat appraisals.

These predictions were based on two areas of the research literature. The first area concerns the compatibility between an individual's coping style and the use of situation-specific coping strategies (e.g., Cohen & Roth, 1984; Miller & Mangan, 1983; Watkins, Weaver, & Odegaard, 1986). Miller and Mangan, for example, conducted a study with

gynaecologic patients about to undergo an uncontrollable aversive diagnostic procedure for gynaecologic cancer. Individual differences in coping style were shown to interact with and moderate the impact of threat-relevant information, with blunters benefiting more from distraction and monitors tending to gain from information about the procedure. Similar findings were obtained with coronary patients undergoing cardiac catheterisation. Watkins et al. found that monitors receiving high levels of preparatory information showed lower arousal levels throughout the procedure than those receiving low levels of information. Conversely, blunters receiving lower levels of information were less aroused than blunters receiving high levels of information. Thus, there appears to be benefits in providing individuals with coping strategies or information that is consistent with their coping style.

These predictions were also derived from stress management intervention studies which have adopted the transactional model of stress (e.g., Anshel, 1990a; Crocker et al., 1988; Johnston & McCabe, 1993). These studies recognised that an individual's appraisal processes were believed to have important affective and behavioural consequences (Vallerand, 1987). After implementing a stress management program, Crocker et al. reported significant effects on the positive thoughts and performance of a sample of elite volleyball players. Anshel found that tennis players instructed in the use of selected coping strategies significantly improved their affect and performance when coping with acute stress. Similarly, in the present thesis it was expected that basketball players would experience improvements in affect, cognitions, and coping efficacy following an intervention program designed to enhance their perceptions of control in coping with acute stress situations.

Assumptions

In the present thesis it was assumed that:

1. All subjects comprehended and accurately completed the self-report surveys.

2. Subjects asked to recall situation-specific stressful events accurately reported actual incidents that occurred during the game.

3. Subjects participating in the stress management intervention groups completed their homework assignments and practised the coping techniques as directed by the researcher.

Delimitations and Limitations of Studies

Delimitations

1. The results of the present studies may not be generalised to stressors unrelated to basketball competition nor to non-basketball athletes. Researchers have emphasised the highly situation-specific nature of coping responses (e.g., Fleishman, 1984; Holahan & Moos, 1987; Lazarus & Folkman, 1984). Krohne (1988), for example, warned researchers to remain cognisant of the specificity of stress-relevant factors in the different sports, and consequently, recommended that investigations of stress and coping be sport-specific.

2. All of the subjects participating in the three studies were adult male basketball players drawn from the Illawarra and the Sutherland Basketball Associations. Whether the findings are equally characteristic of males as well as females, and of players participating in other basketball organisations in Australia was not examined. For example, research on the effects of gender on individuals' coping responses has been inconclusive in past studies (e.g., Billings & Moos, 1981; Folkman, Lazarus, Pimpley, & Novacek, 1987; Miller, 1987), while other studies have found clear gender differences (e.g., Endler & Parker, 1990; Stone & Neale, 1984).

Limitations

1. The findings in the three studies of this thesis relied on self-report questionnaires. Some methodological problems inherent in this style of assessment include inadequate memory, language ambiguity, and the subject's desire to cast himself in a favourable light (e.g., Bolger, 1990; Larsson et al., 1988). Also, Bolger warned that as the time lapse increased between a stressful event and subjects' recollections of their coping efforts, people became more biased towards dispositional accounts of their own behaviour. The present thesis attempted to address this limitation by having subjects complete questionnaires immediately after basketball matches. To further encourage accurate recall of the subjects' coping responses to particular stressors, the investigator actively probed respondents using a personal interview approach. At present, self-report methods of assessing coping represent the best way to measure an individual's cognitive appraisals and coping responses (Folkman & Lazarus, 1980; Lazarus & Folkman, 1984; Miller, 1992).

2. Although efforts were made to devise a stress management intervention program that non-elite basketball players would find both appropriate and effective, it is possible that some subjects may have lacked the commitment to utilise the program to its upmost potential. In an attempt to counter this problem and to help determine the effectiveness of various elements of the program manipulation checks were conducted and homework assignments were monitored (Greenspan & Feltz, 1989).

3. Where possible the present studies utilised existing scales to maximise reliability. However, as these scales were constructed with non-Australian and non-athlete samples, their validity in sport psychology research is speculative.

4. The athletes participating in the three studies were restricted to non-elite basketball players. This was necessary because of the large numbers of subjects required to

conduct factor analyses computations in the second study. State and nationally ranked athletes (i.e., elite) were not accessible. Research has demonstrated that athletes' perceptions of what is considered stressful is a function of ability level (e.g., Gould et al., 1983; Scanlan et al., 1991). These studies have often found that coaches and the presence of spectators represent sources of stress for elite athletes. Subjects in the present studies, however, neither had the services of a coach nor participated in games attended by many spectators. Nevertheless, the sources of acute stress identified by subjects were perceived as highly intense.

Operational Definition of Terms

Acute stress - the short-term product of being exposed to demanding situations that an individual appraises as taxing or exceeding his or her resources (Lazarus & Folkman, 1984).

Approach - an individual's coping orientation towards the stressful event and its cognitive and emotional internalisations (Roth & Cohen, 1986). Has been used interchangeably in the coping literature with terms such as sensitization, accentuation, vigilance, monitoring, attention, and engagement.

Avoidance - an individual's coping orientation away from the threat and towards non-threatening material (Roth & Cohen, 1986). Has been used interchangeably in the coping literature with terms such as repression, denial, blunting, rejection, and disengagement.

Blunting - the extent to which the individual cognitively avoids or transforms threat-relevant information (Miller, 1992).

Chronic stress - the long-term product of being exposed to demanding situations.

Cognitive appraisal - the process of interpreting an encounter with respect to its characteristics and its importance for the individual (Lazarus & Folkman, 1984).

Coping - constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person (Lazarus & Folkman, 1984).

Coping resources - aspects of the self and the social environment that facilitate or make possible successful adaptation to life stress (Compas, 1987).

Coping strategies - cognitive or behavioural actions taken in the course of a particular stressful episode (Compas, 1987).

Coping style - an individual's preference for using certain coping strategies either across different situations or over time within a given situation (Compas, 1987). In the present thesis, coping style related to reported tendencies to use certain coping strategies to a greater or lesser degree within particular stressful situations.

Coping Style in Basketball Inventory (CSBI) - the self-report instrument developed for this thesis to identify a basketball player's coping style across selected competition acute-stress situations.

Emotion-focused coping - coping directed at regulating emotional responses to the problem (Lazarus & Folkman, 1984).

Locus of control - the extent to which people believe they are responsible for their behavioural outcomes (Cox, 1985).

Monitoring - the extent to which the individual is alert for and sensitised to threat-relevant information (Miller, 1992).

Primary appraisal - judgements that a transaction is irrelevant, benign-positive, or stressful (Folkman, 1984). Stress appraisals include harm/loss, threat, and challenge.

Problem-focused coping - coping directed at managing or altering the problem causing the distress (Lazarus & Folkman, 1984).

Secondary appraisal - the evaluation of coping resources and options (Lazarus & Folkman, 1984).

Stressors - external (environmental) stimuli and/or internal (cognitive) perceptions that cause the stress response.

Transactional model - views the person and environment as being in a mutually reciprocal, bi-directional relationship where elements of each join together to form new meanings through appraisal (Lazarus & Folkman, 1984).

CHAPTER TWO

LITERATURE REVIEW

Stress is inherent in competitive sport. Participants are continually under pressure to perform not only to the best of their ability, but to surpass the efforts and achievements of other athletes. A variety of sources of acute stress are prominent in affecting athletes during competition. Examples of acute stress include making physical or mental errors, suffering an injury, and receiving abuse from an opponent. The inability to withstand the negative effects of stress has been shown to have a deleterious impact on an athlete's performance, and his or her emotional, and psychological well-being.

Coping has only recently been recognised as a primary factor in allowing athletes to deal effectively with stress. Also, the coping strategies an individual uses in a stressful encounter appear to be dependent upon personal dispositions, cognitive appraisals, and situational characteristics. Consequently, if sources of sport-related acute stress were identified and investigations were conducted to understand the factors involved in the coping process, researchers could implement more effective coping skills training programs.

This chapter consists of three sections. The first section discusses the concept of stress, with special attention given to the effect of stress in competitive sport. In particular, the distinction between chronic and acute sources of stress in various sports is described, and the various methods for measuring stress are reviewed.

The second section describes the process of coping and how it affects adaptational outcomes of psychological and somatic health. Emphasis is given to Lazarus and Folkman's (1984) cognitive theory of psychological stress and coping which identifies two processes, cognitive appraisal and coping, as critical mediators of stressful encounters. Research investigating these processes has proposed various typologies of

coping responses, many of which have demonstrated the pervasiveness of an approach-avoidance dimension of classifying coping responses. These findings are reviewed together with research which explores whether individuals possess a disposition called a coping style that predisposes them to employ preferred coping strategies. Evidence in support of a transactional model of stress and coping as a function of personal, situational, and environmental factors is also reviewed. Factors instrumental in determining coping effectiveness and which need to be considered when developing stress management intervention programs are reviewed later in this section. Discussion of methodology issues pertaining to the efficacy of coping strategy measures, and subsequently, the need for a new coping scale concludes the section.

The final section examines the strengths and weaknesses of stress management interventions used to date in the context of sport and physical activity. Stress management programs that have implications for coping with acute stress are emphasised.

Stress

Definitions of Stress

There has been a multitude of definitions for the term stress. However, most researchers have conceptualised stress as a stimulus, a response, or a transaction. The most common definition of stress adopted by psychologists has been that it is a stimulus. Here, the precipitating role of environmental factors such as major life events is emphasised (Holmes & Rahe, 1967). According to this definition, certain environmental events are universally stressful to all individuals. Lazarus and Cohen (1977) have identified three types of environmental events which are typically cited as stressful. These are: (1) major environmental changes, including natural disasters and man-made catastrophes, (2) major life changes, and (3) daily hassles. Advocates of the second category of events, major life changes, have postulated that stress in the form of

clustering life events leads predictably to stress symptoms such as illness. Holmes and Rahe (1967) developed The Schedule of Recent Experience (SRE) to measure the number of major life events to which a person has been subjected over a given period of time. Lazarus and Folkman (1984) questioned the utility of such an approach because certain situations were assumed to be normatively stressful while not allowing for individual differences in the evaluation of events.

Stress has also been commonly defined in response terms. This definition which has been prevalent in biology and medicine emphasises the person's response to any demand imposed upon it. Selye (1956) maintained that stress is the nonspecific response of the body to any demand (stressor) placed on it. The main limitation of this definition of stress arises from having to define stress by the response. Thus, the only systematic way of identifying what will be a stressor and what will not is by awaiting the reaction. Furthermore, many responses are inaccurately designated indicants of psychological stress. For example, although jogging produces a sharp rise in heart rate it is unclear whether the individual is feeling psychologically relaxed or disturbed. In summary, Lazarus and Folkman (1984) contended that all stimulus-response definitions of stress were circular and failed to address the crucial question of what it was about the observed stimulus-response relationship that determined stress.

The transactional definition, the third way that researchers have referred to stress, tends to emphasise more strongly the role of appraisal in determining arousal. Stress is viewed as "a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (Lazarus & Folkman, 1984, p. 19). Therefore, the supporters of this definition maintain that stress resides neither in the situation nor in the person, but in a transaction between the two. Many studies have demonstrated that cognitive appraisal processes mediate stress response levels (e.g., Carver & Scheier, 1994; Folkman & Lazarus, 1985).

Folkman and Lazarus (1985), for example, examined the relationship between appraisals and emotion with students undertaking a midterm examination. Two days

before the exam students were asked several appraisal-related questions as well as the extent to which they were experiencing threat-oriented emotions. Two appraisal variables, how much the student had at stake, and how difficult the exam was expected to be, proved to be important predictors of threat emotions. In a similar study, Carver and Scheier (1994) asked students to indicate how confident they were about getting the grade they wanted, and how important it was for them to do well in the exam. The researchers found that importance of the exam was positively related to threat emotions, and that confidence was related inversely to feelings of threat. These findings support the view that the way a person appraises an encounter influences how he or she reacts emotionally.

In a sporting context, Crocker (1992) acknowledged that this approach did not view stress as being synonymous with external pressure or that stress reactions were caused solely by the characteristics of the environment. Rather, a transactional definition of stress emphasised the process between perceptions of the situation, and the athlete's ability to handle or manage environmental demands. The present three studies will be guided by the conceptual framework of the transactional definition of stress.

Effects of Stress on Motor Performance and Cognition

Stress is an integral part of life. Various studies have revealed that even before birth, stress experienced during pregnancy can influence both the mother and the fetus (Spielberger & Jacobs, 1979). Following the trauma of birth itself, sources of stress are continually imposed upon the child and adolescent as they experience the process of education and socialisation. Additional stressful life events include those first romantic liasons, taking an examination, having to submit a thesis within a time deadline, pressures at work, stressors associated with marriage, speaking in public, family relationships, and retirement. While many of these stressors have negative effects on the individual's well-being, considerable evidence now exists to support the claim that excessive amounts of stress may have deleterious effects on a person's physical performance and cognitions.

Literature in the field of industrial psychology has examined the effects of stress in the workplace. Calhoun and Calhoun (1983) for example, contended that occupational stress played a significant role in the psychosocial and physiological well-being of an individual. They identified stressors including work overload, job insecurity, poor worker-job match, role ambiguity, antiquated equipment, administrative demands, and lack of participation in decisions that affect the worker's environment. Adverse effects on job performance included lowered productivity, high absenteeism, poor judgement, irritability, anger, and worker complaints. Translating the effects of excessive stress into monetary terms, Pelletier (1984) cited the following expenses in the United States: (1) $44.2 billion for alcohol abuse, (2) $3,394 for each employee per year with chronic headaches, and (3) $290 added to the cost of each car produced by the Ford Motor Company in 1980.

The dramatic effects of stress endemic to two other activities, combat-duty and police work, have also been examined. Battle shock and battle fatigue, also known as combat stress reaction (CSR), is the most widespread manifestation of pychopathology on the battlefield. The short-term effects of CSR are characterised by psychomotor retardation, withdrawal, increased sympathetic activities, stuttering, confusion, nausea, vomiting, and paranoid reactions (Grinker & Spiegel, 1945). Police work is also considered highly stressful because it involves personal dangers, challenges, constant anticipation, and the ability to regulate hostile feelings to control provocative situations. More routine experiences, such as constant shift changes, feelings of being on duty all the time, rapidly changing levels of stimulations during a single shift, and the inherent nature of the work have all been reported as stressful experiences (e.g., Haynes, 1978). Consequently, there is evidence to suggest that law enforcement professionals are at high risk for a variety of psychological and physical conditions, including cardiac disorders, death at an early age, suicide, and depression (e.g., Jacobi, 1975). That stress is a significant agent in the development of various physical and psychological disorders appears unequivocal.

Participants in competitive sport are not excluded from the effects of stress. It is well recognised that extreme levels of stress can have adverse consequences on performance, enjoyment of the activity, and the physiological and psychological welfare of the athlete (Passer, 1984; Smith, 1984). Researchers in the sport and motor behaviour area have addressed the negative consequences of stress on human performance (for reviews see Hatfield & Landers, 1987; Hockey, 1983).

Weinberg and Hunt (1976), for example, reported differences between high-trait anxious and low-trait anxious subjects regarding the temporal patterning of coordinated electromyographical activation during the execution of an overarm throw testing accuracy. The high trait-anxious individuals were characterised as inefficient, when compared to the low trait anxious subjects, since they performed the same task with unnecessary muscular activity and wasted energy. Further support for the contribution of muscular inefficiency to poor performance comes from a study from Pinel and Schultz (1978). They had intercollegiate wrestlers perform psychomotor tasks prior to competition and found that performance levels for grip strength and hand steadiness tasks, defined as a function of increased tension, increased. More recently, Kleine, Sampedro, and Melo (1988) found that track and field athletes high in state anxiety showed: (1) increased heart rates in addition to the expected increases due to the physical work load during the testing period, and (2) poor running performance.

Findings from the stress-illness literature have demonstrated that excessive physiological and psychological stress induced by sports competition increases the likelihood and severity of injuries (e.g., Kerr & Minden, 1988). Ekstrand and Gillquist (1983) asserted that increases in generalised muscle tension could disturb motor coordination and reduce flexibility, thus contributing to strains, sprains, and other musculoskeletal injuries. Obviously, physical performance skills are impaired. Further, once injured, the athlete is subjected to even more stress which significantly interferes with the healing process (Lynch, 1988). Athletes experience a secondary-stress syndrome that creates additional fear.

Other researchers have explored whether different thoughts and psychological states are accompanied by specific bodily changes. Morgan (1985) explored this relationship by summarising the effects of psychogenic factors upon resting and exercise metabolism. The marked effect of cognitive factors upon physiological reactivity at rest was demonstrated by significant elevations in cardiac output, heart rate, and oxygen consumption, whereas suggestions of relaxation produced a lowering of these physiological indicants. Results such as these has led researchers to believe that cognitions play a central role in determining stressful reactions. When examining the psychological demands of sport upon the athlete, the duration of the event or stressful incident becomes significant.

Chronic and Acute Stress

Researchers have distinguished between chronic and acute stress. Elliot and Eisdorfer (1982) have defined chronic stress as stressful events which persist continuously for a long time, whereas acute stressors refer to short-term, time-limited events. Hence, the duration of the event and the demands imposed upon the individual distinguish between chronic and acute stress. In sport, chronic or persistent stressful experiences for the athlete may include perceptions about winning or having to meet the expectations of coaches, fans, and teammates. Acute stress or time-limited events, on the other hand, include committing a physical or mental error while performing, reacting to an unfavourable call from an official, and receiving criticism from spectators. Although, research has shown that both of these forms of stress are derived from different sources and affect different cognitive and somatic processes (Lazarus & Folkman, 1984), it has been proposed that chronic stress is at least a partial function of the failure to cope with a series of acute stressors, particularly over an extended period of time.

In his review of literature concerned with stress and coping in sport, Anshel (1994) discussed the short- and long-term psycho-physiological effects of acute stress. He noted that the short-term psychological effects of acute stressors in competitive sport

include: (1) reduced quality of decision making; (2) misguided attentional focus; (3) decreased effective and sustained self-regulatory behaviour; (4) self-preoccupation, often displaying a variety of self-defeating and interfering thoughts and feelings; (5) reduced risk-taking behaviour; and (6) increased anxiety. From a physiological perspective, acute stress may also increase muscle tension with a corresponding reduction in motor coordination. Among the long-term effects of sport stress that Anshel considered most salient are lowered self-expectations, reduced self-esteem, and decreased effective and sustained self-regulatory behaviour. The literature also suggests that each different type of stressor may require different coping strategies for effective coping (Anshel, 1990b; Matheny, Aycock, Pugh, Curlette, & Cannella, 1986).

The need to distinguish between chronic and acute sources of stress becomes crucial in a sport such as basketball where play is continuous and in which very few time-out periods are permitted. While chronic stress situations often allow athletes the necessary time to correct or adjust aspects of their game and use appropriate coping strategies, coping with acute stress in a competitive game has to be executed almost instantaneously. Under time pressure, stressed individuals often demonstrate a hasty, disorganised, and incomplete evaluation of information which leads to faulty decisions (Janis & Mann, 1977). Also, during moments of acute stress a narrowing of the visual field may cause the basketball player to miss vital clues in the periphery. This would increase the likelihood of poor performances and injuries (Singer, Cauraugh, Tennant, Murphey, Chen, & Lidor, 1991). Consistent with this view is Carver and Scheier's (1981) contention that "high levels of self-focus further increased the tendency toward behavioral interruption" (p. 223). Therefore, it is clear that an athlete's inability to cope with acute stress may pre-empt a variety of ill-effects including muscular tension, disruption of attentional processes, poor performance, choking, and eventually withdrawal from further participation in sport. An important area of research involves developing coping strategies that can aid athletes in coping effectively with acute stressors.

In developing coping strategies in sport, the first step requires the identification of sources of stress considered most stressful by the athletes under investigation. In basketball, sources of stress can be classified as either "on-court" or "off-court" (Kaissidis, 1993). In general, off-court activities such as travelling arrangements or family problems are associated with chronic sources of stress, and are not always related to the player's game performance. In contrast, on-court sources of acute stress in basketball usually do affect the player's performance (Kaissidis & Anshel, 1993). Consequently, if athletes are to achieve their optimal performance during competition, researchers need to examine the coping process as a relevant mental skill for handling the negative effects of stress.

Sources of Stress in Sport

The stimulus that evokes a stress response is called a stressor. There are two generic types of stressors: biogenic stressors and psychosocial stressors (Girdano & Everly, 1986). As a result of their biochemical properties, biogenic stressors directly initiate the stress response without passing through cognitive appraisal mechanisms. Most stressors, however, including those to be examined in the present studies, are psychosocial stressors. They do not directly elicit the stress response but become, instead, stressors from the person's interpretation of them. Although stressors are dependent on appraisals, individuals with common interests or similar characteristics experience comparable stressors. Investigations into sources of stress have been reported for certain groups of individuals such as police officers (e.g., Larsson et al., 1988), social workers (Taylor-Brown, Johnson, Hunter, & Rockowitz, 1982), nurses (West, Horan, & Games, 1984), school teachers (e.g., Kyriakou & Sutcliffe, 1978), and athletes (e.g., Cohn, 1990; Kaissidis, 1993). The identification of sources of stress of a selected population typically represents the first step in designing stress intervention programs (Meichenbaum, 1985; Smith, 1986).

In Meichenbaum's (1985) Stress Inoculation Training (SIT) program, much time is devoted to collecting information about the nature of the client's stress-related problems and symptoms. The psychologist can then provide a cognitive-functional analysis of the internal and external determinants of stress reactions so that the client can become aware of low intensity cues that signal the onset of stressful reactions. Similarly, Taylor-Brown et al. (1982) outlined the importance of assessing sources of stress. Their reasons included: (1) offering individuals a better understanding of the type and intensity of stressors that they are likely to experience, (2) enabling individuals to assess their level and intensity of stress in attempting to counteract it, (3) providing the supervisor with an objective rating of the person's stress levels, and (4) allowing the development of training programs aimed at increasing the person's sensitivity to stressors that he or she is likely to encounter. Such approaches allow the stressors to be examined in an organised and systematic way. During the past decade researchers have examined the perceived sources of stress for athletes in various sports. However, the majority of these studies have failed to differentiate between acute and chronic sources of stress.

Studies examining stress have been conducted with youths in sport (e.g., Martens & Gill, 1976; Pierce & Stratton, 1981; Scanlan, 1977), junior elite wrestlers (Gould et al., 1983), former elite figure skaters (Scanlan et al., 1991), junior elite runners (Feltz & Albrecht, 1986), youth golfers (Cohn, 1990), and basketball players (Fisher & Zwart, 1982; Kaissidis & Anshel, 1993; Madden et al., 1990). A number of considerations have been used in categorising stressors in these studies.

The majority of sources of stress studies have investigated the degree to which personal and situational factors contribute to the development of stress in youth sport and elite athletes prior to, during, and following competition. Personal factors include the competitor's dispositions, cognitions, psychological states, self-perceptions, and their perceptions of significant adults and peers. Situational factors include such variables as the achievement characteristics inherent in various sport contexts, events that commonly occur during competition, and the behaviours of significant others (e.g., Scanlan & Lewthwaite, 1984). Sources of competitive stress have been identified for youth non-

elite sport athletes: competitive trait anxiety, personal performance expectancies, team performance expectancies, and self-esteem are all associated with precompetition stress (Scanlan & Passer, 1978); not performing up to one's standards is related to competition stress (Martens & Gill, 1976); and not playing well, and making mistakes during the activity heightens postcompetition stress (Pierce & Stratton, 1981). Other studies have assessed the sources of stress experienced by junior elite athletes. Among these stressors are the following: somatic complaints, fear of failure, feelings of inadequacy, loss of control, and guilt (Kroll, 1980); performing up to one's ability, improving on one's previous performance, not performing well, and losing (Gould et al., 1983); and importance of competition, politics associated with the sport, financial demands and costs, and family disturbances (Scanlan et al., 1991). While providing valuable insight into the perceived causes of worry for a variety of athlete populations, none of these studies have distinguished between chronic and acute sources of stress.

With reference to basketball, however, two studies have attempted to identify the sources of stress faced by players, and in each case a range of chronic and acute stressors was assessed. Fisher and Zwart (1982) probed male college athletes' self-reported perceptions of and responses to 18 anxiety-eliciting situations. The situations contained potential sources of anxiety during pregame, game, and postgame periods. For each stressor, players were asked to indicate on a 5-point scale the degree to which each of 11 possible response modes (e.g., get an uneasy feeling, react over-emotionally, experience nausea) affected their perceived response. The highest stress responses were sources of acute stress and included committing a shooting foul with two seconds remaining in the game, and being criticised by the coach for a bad play. Two responses not considered very stressful included being on the team bus going to an important away game, and being in the locker room after losing a game. It is difficult to justify the utility of these final responses as, not only are they unrelated to performance on court, they are chronic in nature.

Madden et al. (1990) developed and administered the Stressful Situations in Basketball Questionnaire (SSBQ) to 133 basketball players who participated in regular

organised competition. The SSBQ consisted of 20 situations or game states which occur in competition basketball. Players were asked to rate the degree of stressfulness experienced in each situation on a 5-point Likert scale ranging from 0 (not stressful) to 4 (very stressful). Stressors rated as the most stressful of the 20 situations included "My personal form is in a slump...." and "My team is losing and the opposition is holding up play by keeping the ball away from us." Other highly rated stressors were "Referee decisions have been of a poor standard," "Having the ball stolen from me," and "Missing lay-ups." While this study attempted to focus only on stressors experienced during a game, it included situations that reflect both chronic and acute stress. A comprehensive list of acute stressful situations to which players are exposed during a game has yet to be assessed.

It is important to note that stressors are increasingly dependent on the characteristics of the particular sport under examination. This point is demonstrated in a study with young male gymnasts by Weiss, Wiese, and Klint (1989). Contrary to the previously reviewed studies with basketball players, this study reported that four of the five top ranked stressors were related to significant others' evaluations and expectations and only one related to performance (i.e., remembering routines). Such findings clearly demonstrate the sport-specific nature of sources of stress and suggest that investigations of acute stressors must proceed on this basis.

The Measurement of Stress

In general, researchers have distinguished between assessing stress using physiological parameters, behavioural observations, and questionnaires. Physiological indicators involve respiratory and cardiovascular indicators, biochemical indicators, and electrophysiological indicators. Parameters frequently studied have included blood pressure, pulse rate, respiration rate, biochemical indicators such as adrenaline and noradrenaline, and electrophysiological measures such as muscle potentials and skin resistance.

According to Hackfort and Schwenkmezger (1988), there are many limitations associated with employing physiological measures to assess stress in sport situations. First, analyses are primarily method-dependent, that is, two different physiological indicators may show only slight correlations with each other. Second, although studies have shown that physiological side-effects of emotional processes can be measured, to date only a few specific reactions of qualitatively different emotions have been found. This means that an increase in heart rate may reflect negative stress (e.g., fear) or positive stress (e.g., joy). Third, physiological indicators cannot legitimately be used when the player is active because these parameters change more as a result of physical activity than as a result of stress. Fourth, physiological processes can be influenced by climate, general well-being, fitness, and different biological rhythms. Finally, there are problems in gathering and interpreting the data.

Behavioural observations refer to the evaluation of the subject's performance and non-verbal or expressive reactions. This approach to measuring stress suffers from the same ambiguity as the physiological processes indicated earlier. Observations of behaviours are problematic because one cannot distinguish between anxious behaviour and coping behaviour. Thus, behavioural data are insufficient when used alone to interpret stress reactions and become useful only in conjunction with procedural data and self-statements provided by the subject.

Questionnaires and self-report measures require subjects to complete psychological inventories and/or interviews to describe their perceptions of certain stressful events. This method of assessing stress also has its limitations. Methodological problems include social desirability, inadequate memory, dishonesty, a lack of openness, language ambiguity, and requiring the respondent to perceive stressful cognitions him or herself whilst often in a state of heightened anxiety (Lazarus & Folkman, 1984). It has been recommended that various controls and manipulation checks be used to verify self-report data (Greenspan & Feltz, 1989; Kerr & Leith, 1993).

To verify their findings when measuring stress, researchers have attempted to utilise various combinations of physiological, behavioural, and self-report methods.

Unfortunately, these efforts have only succeeded in highlighting the difficulties inherent in data interpretation. Because of the financial, technical, and methodological problems associated with collecting physiological, behavioural, and subjective data simultaneously, Lazarus and Folkman (1984) recommended the sole use of self-reports. They argued that to disregard the individual's perceptions of an incident was to lose the most valuable source of information about a person's feelings and about what was happening to him or her. Once stress levels and adaptational outcomes are detected and can be shown to be consistent with theoretical models, then verification using behavioural and physiological methods are warranted. In one case study that illustrates this multimethod approach, Weinberger, Schwartz, and Davidson (1979) measured defensiveness to differentiate subjects who were low in anxiety and repressive from those who were low in anxiety and not repressive. These subgroupings successfully predicted different levels of somatic arousal.

Finally, self-reports have constituted the primary means of measuring stress and coping in recent years adopting the theoretical model developed by Lazarus and his colleagues (Lazarus, 1966; Lazarus & Folkman, 1984; Lazarus & Launier, 1978). Implicit in this model is the role of cognitive processes. Lazarus and Folkman contended that questionnaires provided the best way of retrieving information concerning an individual's appraisals and coping efforts. Thus, the present thesis explored the role of appraisals and use of coping strategies using self-reports.

The Coping Process

The Theoretical Framework of Coping

A consensus has yet to be reached amongst researchers concerning the factors influencing coping. Folkman and Lazarus (1980) contended that coping could be conceptualised in three broad perspectives, namely, as traits, as situation-oriented approaches, and as transactions.

Researchers who conceptualise coping as a trait emphasise the influence of personality characteristics on coping responses (e.g., Byrne, 1964; Goldstein, 1973; Kobasa, 1979; Krohne, 1993; Miller, 1992). These traits are considered to be stable, enduring, and consistent across a variety of differing situations and over time. Lazarus and Folkman (1984) considered trait measures to be poor predictors of coping processes as substantial consistency had seldom been found in personality research. Furthermore, they claimed that the unidimensional quality of most trait measures did not adequately reflect the vast array of strategies people used in dealing with stressful encounters. For example, Moos and Tsu (1977) point out that in coping with physical illness many sources of stress must be managed by the patient, including pain and incapacitation, hospitalisation, treatment regimens, the maintenance of good relationships with family and friends, and the presentation of a satisfactory self-image. Attempting to capture the array of coping strategies used across many tasks cannot be achieved with a unidimensional measure.

Situation-oriented researchers approach the study of coping from a second perspective. Supporters of this approach assume that individuals consistently employ the same coping strategies in certain situations (e.g., Billings & Moos, 1981; McCrae, 1984; Pearlin & Schooler, 1978). Thus, it is the objective characteristics of the situation that determine what coping efforts an individual will use. Billings and Moos examined how individuals dealt with six types of recent stressful events (illness, death, economic, children, other interpersonal, and other non-interpersonal), and McCrae had men and women describe their coping responses to a recent life event categorised as either a loss, a threat, or a challenge. While the situation approach allows a more inclusive and comprehensive description of coping than the trait approach, Lazarus and Folkman (1984) argued that findings tend not to be generalisable to other contexts.

Another approach to conceptualising coping draws on all of the other approaches and was used in the present studies. It falls within the framework of a cognitive theory of psychological stress and coping developed by Lazarus and his colleagues (e.g., Folkman & Lazarus, 1980; Lazarus, 1966; Lazarus & Launier, 1978). It is referred to as

the transactional model in which coping is a function of personal, situational, and environmental factors. This model rejects the view that coping can be characterised as a stable trait, or the argument that stress reactions are caused solely by the characteristics of the environment. Studies by Parkes (1986) and Terry (1991) are representative of this approach. These studies illustrated that coping was determined both by the enduring characteristics of individuals and their environment and their subjective perceptions of the situation. What remains unclear, however, is the extent to which each of the personal, situational, and environmental factors influences the coping process. This issue and the related research will be addressed in a later section. In the meantime, it is necessary to discuss the two constructs that are central to the transactional approach: appraisal and coping.

Cognitive Appraisal

Cognitive appraisal refers to "the unique and changing relationship taking place between a person with certain distinctive characteristics (values, commitments, style of perceiving and thinking) and an environment whose characteristics must be predicted and interpreted" (Lazarus & Folkman, 1984, p. 24). Arnold (1960) was the first researcher to systematically examine appraisal. She concluded that emotions are caused by the appraisal of encountered stimuli, describing it as a rapid intuitive process that occurs automatically. More recently, Lazarus (1982) contended that, "The appraisal process gives rise to a particular emotion with greater or lesser intensity depending on how the relationship is evaluated with respect to the person's well-being. Cognitive appraisal means that the way one interprets one's plight at any given moment is crucial to emotional response" (p. 1012). Accordingly, each emotion quality such as guilt, jealousy, love, or joy is generated by individual's appraisals of how they think they are managing what is important to them in a particular context. Lazarus and Folkman (1984) distinguished between two principal forms of appraisal, primary and secondary appraisal.

Primary Appraisal

Through primary appraisal the individual evaluates how important the encounter is for his or her well-being. According to Lazarus and Folkman (1984), three evaluations are possible: (1) irrelevant, (2) benign-positive, and (3) stressful. An irrelevant appraisal has no personal significance to the individual and, hence, can be ignored. Relatively little is lost or gained in the transaction. Benign-positive encounters occur when the outcomes are viewed as being beneficial or desirable. This type of appraisal is characterised by pleasurable emotions such as joy, love, happiness, exhilaration, or peacefulness.

Stress appraisals can take three forms, namely, harm-loss, threat, and challenge. Harm-loss appraisals refer to some damage that has already been sustained by the person such as an injury or illness, recognition of some damage to self-esteem, or loss of a valued person. Threat appraisals concern anticipated harms or losses. Challenge appraisals are similar to threat appraisals in that they both involve the mobilisation of coping efforts. They differ in that challenge appraisals focus on the potential for positive gain, mastery, or growth. Threat appraisals, on the other hand, may create harm or danger. Thus, challenge appraisals are characterised by pleasurable emotions such as eagerness, excitement, and exhilaration, whereas threat appraisals are characterised by negative emotions such as fear, anxiety, and anger.

Folkman (1984) stated that the primary appraisals of harm-loss, threat, and challenge were not necessarily independent. An individual losing a limb, for example, may make appraisals of both harm and threat, such as recovery, rehabilitation, and commitments to long-standing activities and goals. Similarly, threat and challenge are not independent. A job promotion may be appraised as an opportunity for gaining skills, responsibility, recognition, and financial reward, while at the same time offering the possibility of performing poorly. Findings suggesting that the appraisals of threat and challenge are independent and likely to occur simultaneously were reported by Folkman and Lazarus (1985). In their study about examination stress, students were asked to indicate the extent to which they experienced each of a number of threat emotions such as fear, worry, and anxiety, and challenge emotions such as hopefulness, eagerness, and

confidence, two days prior to a midterm examination. Results showed that 94 percent of the students reported feeling both threat and challenge emotions; threat and challenge emotions were virtually uncorrelated (r = -.05).

Studies assessing a person's primary appraisal have typically utilised one of two methods. The first method requires subjects to describe a particular stressful encounter, and then on a Likert scale, make several appraisals concerning what was at stake in that encounter (e.g., Folkman & Lazarus, 1980, 1985; Folkman et al., 1986a). Appraisals include threats to the individual's health, safety, or physical well-being, and threats to an important job goal, relationship, or a person's self-respect.

Lazarus and Folkman (1984) warned that the cognitive appraisal process was often difficult to observe empirically because the individual may be unaware of any or all of the basic elements of an appraisal. To avoid these problems, the authors suggested that an alternative method for assessing primary appraisals was via the quality and intensity of emotional reactions. Studies have supported the efficacy of this method (Folkman & Lazarus, 1985; Larsson et al., 1988). For example, Larsson et al. asked police officers to retrospectively report their thoughts and emotions in response to recent acute stressful job events. On a 4-point Likert scale, subjects indicated the degree to which they experienced 18 different emotions in a given situation. These emotions reflected the primary appraisal categories of irrelevant, benign-positive, challenging, and threat. This method might also be appropriate in sport situations of an acute nature. When attempting to assess athletes' appraisals of stressful incidents encountered during competition, it is highly probable that intense emotions would be easier to recall than separate judgements involving stakes of importance.

In summary, the degree of stress a person experiences in an encounter depends on what he or she judges to be at stake, and the magnitude of the potential costs and/or benefits that can be derived from the encounter. Stressful appraisals of threat and challenge should be considered as separate constructs, although they can occur simultaneously. Finally, measuring emotions retrospectively may represent the best way to examine the primary appraisals of athletes managing time-limited stressful situations

during competition.

Secondary Appraisal

Secondary appraisal is the process of evaluating coping resources and options that might be available in a stressful encounter, that is, evaluating what might and can be done to overcome or prevent harm or to improve the prospects for benefit (Lazarus & Folkman, 1984). This form of appraisal is a critical feature following a primary appraisal of harm, loss, threat, or challenge because the outcome depends on what, if anything, can be done about the stressor, as well as what is at stake. Coping resources, which include physical, social, psychological, and material assets, are evaluated with respect to the demands of the situation. Psychological resources include beliefs that can be drawn upon to sustain hope, skills for problem-solving, self-esteem, and morale. This category of resources is particularly relevant to the present thesis and its involvement in the coping process will be discussed later.

Secondary appraisal also takes into account situational appraisals of control. These appraisals refer to the person's judgement or belief about the possibilities for control in a specific encounter (Folkman, 1984). Consequently, assessing secondary appraisal has usually consisted of determining either the extent to which the person senses that something can or cannot be done about the stressful encounter, or whether anything can be done to overcome or minimise the harmful effects of the encounter. Researchers have tended to adopt the method developed by Lazarus and Folkman (1984) in which subjects use a 5-point Likert scale to rate the extent to which the situation was one that: "You could change or do something about," "You had to accept," "You needed to know more before you could act," and "You had to hold yourself back from doing what you wanted to do" (p. 316).

Primary appraisals of what is at stake in an encounter and secondary appraisals of controllability combine to influence an individual's coping responses. Indeed, most studies have revealed that a person's subjective appraisal of the event is probably the most significant single factor in influencing one's choice of coping strategies (e.g., Folkman et

al., 1986b, 1986a; Larsson et al., 1988; Parkes, 1984; Terry, 1991). Research studies that have demonstrated the importance of appraisals in coping will be presented later.

Coping Responses

Coping has been defined in different ways over the years. In general, coping has been viewed as "individuals' efforts to minimise distress and to maximise performance" (Dweck & Wortman, 1982, p. 95), and "overt and covert behaviors that are taken to reduce or eliminate psychological distress or stressful conditions" (Fleishman, 1984, p. 229). However, the definition of coping that is most widely adhered to is provided by Lazarus and Folkman (1984) who defined coping as, "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (p. 141). Cognitive responses refer to efforts by the individual to reduce an emotional state like anxiety, or to change his or her subjective appraisals. Behavioural responses are attempts to avoid or actively change the situation. There are several key features about Lazarus and Folkman's (1984) definition of coping.

The first feature of their definition is that coping is process-oriented. A process approach to coping: (a) focuses on what the person actually thinks and does, (b) includes cognitions and behaviours that are examined within a specific context, and (c) recognises that an individual's thoughts and actions will change as a stressful encounter unfolds. As the status of the person-environment relationship changes, a person may have to rely more heavily on one form of coping than another.

Second, this definition implies a distinction between coping and automatised adaptive behaviour. Lazarus and Folkman (1984) limited coping to conditions of psychological stress which required mobilisation and excluded automatised behaviours and thoughts that did not require effort and conscious thought by the individual.

A third feature of this definition of coping is that no a priori assumptions about what constitutes good or bad coping are made. Thus, coping may include anything that

the person thinks or does, regardless of the success of their efforts. Also, Cohen (1987) believed that judgements as to the efficacy and appropriateness of a strategy must be made contextually, that is, in a given situation.

In recent years researchers have developed many ways of classifying coping responses (e.g., Billings & Moos, 1981; Folkman & Lazarus, 1980; Pearlin & Schooler, 1978). Many of these typologies reflect the features of coping contained in Lazarus and Folkman's (1984) definition. These typologies can be categorised into two major formulations of coping. The first formulation is categorising coping as problem-focused or emotion-focused, and the second formulation is based on whether the strategies are of an approach or avoidance nature.

Focus of Coping

Lazarus and Folkman (1984) proposed a typology of coping responses that distinguished between managing or altering the problem causing the distress, and at regulating emotional responses to the problem. The authors refered to the former as problem-focused coping and to the latter as emotion-focused coping. Several forms of problem-focused coping (e.g., confrontive coping and planful problem solving) and emotion-focused coping (e.g., distancing, escape-avoidance, and seeking social support) have been identified (c.f. Folkman & Lazarus, 1985; Folkman et al., 1986b). The past decade has witnessed a number of researchers identifying similar dimensions of coping responses. Holahan and Moos (1987), like Lazarus and Folkman (1984), believed that most approaches to coping distinguished between strategies that were active in nature and oriented toward confronting the problem, that is, problem, or task, focused, and strategies that attempted to manage tension and other unpleasant feelings by avoidance in dealing with the problem.

Pearlin and Schooler (1978) have classified coping responses into three categories: (1) responses that modify the situation, (2) responses that alter the meaning or appraisal of the stressor, and (3) responses intended to control distressful feelings. The first category corresponds to problem-focused coping and the second and third types reflect

emotion-focused coping (e.g., comparing oneself favourably to others and ignoring negative aspects of the situation). McCrae (1984) produced a comprehensive list of 28 coping behaviour subscales. A number of problem-focused strategies (e.g., rational action, seeking help, perseverance, self-adaptation), and emotion-focused strategies (e.g., positive thinking, social comparison, fatalism, and faith) were included.

More recently, Carver et al. (1989) suggested that the distinction between problem-focused and emotion-focused coping was too limiting and did not include all of the coping strategies that were possible. They observed that when coping had been assessed using The Ways of Coping Scale developed by Folkman and Lazarus (1980) responses to this scale often formed several factors rather than just two. Their concern was that emotion-focused coping had been applied to a wide range of coping responses, some of which seemed to diverge quite sharply in character. Responses such as wishful thinking, self-blame, tension reduction, and self-isolation had all been clumped under the label emotion-focused coping. Carver and his colleagues contended that each strategy suggested different functions, and these separate functions may have very different implications for a person's success in coping. Consequently, they produced an inventory, the COPE, comprising 13 scales: five scales on problem-focused coping, five scales on emotion-focused coping, and three scales assessing focus on and venting of emotions, behavioural disengagement, and mental disengagement, respectively. The factor structure of the COPE has since been validated in other studies (Bouffard & Crocker, 1992; Carver & Scheier, 1994).

Therefore, it appears that there are different ways of classifying coping responses. Some proposed typologies have failed to offer precise distinctions among types of coping. For example, activities that change the meaning of a situation (Pearlin & Schooler's, 1978, second category of coping behaviours) can also reduce emotional distress (Pearlin & Schooler's third category). Distinguishing coping responses in terms of their focus (i.e., dealing primarily with problems or with emotions) so as to minimise ambiguities appears to warrant further attention for researchers endeavouring to develop typologies that offer precise distinctions among types of coping.

Method of Coping

The second formulation of coping divides efforts to resolve the stressful event into responses which Roth and Cohen (1986) described as an approach and avoidance classification system. Approach coping is defined as an individual's behavioural, cognitive, and emotional orientation towards the stressful event, whereas avoidance coping is a personal orientation away from the stressful event. In a review of the coping literature, Roth and Cohen (1986) revealed that the approach-avoidance dimension has described coping responses in terms of repression versus sensitization, selective attention versus selective inattention, denial versus accentuation, avoidance versus vigilance, attention versus rejection, and monitoring versus blunting.

Miller's (1987) monitoring-blunting framework has been likened to the concept of approach and avoidance although the two methods of coping are not identical. Monitoring is defined as "the extent to which the individual is alert for and sensitized to threat-relevant information" (Miller, 1990, p. 99), whereas blunting refers to avoiding or distracting oneself from threatening information. Thus, Miller's construct is confined to the informational aspects of coping responses. Approach and avoidance, in contrast, include informational (cognitive), behavioural, and emotional coping activity in response to a stressful event. Carver et al. (1989) demonstrated that monitoring and blunting dimensions are different to problem- and emotion-focused coping responses when they asked students to complete the Miller Behavioural Style Scale (Miller, 1987) as well as their own COPE inventory. Results revealed that monitoring was related to seeking social support for instrumental (informational) reasons and turning to religion. However, other problem-focused coping strategies including active coping and restraint coping were unrelated to monitoring suggesting that problem-focused coping is a broader concept than monitoring. Leventhal, Suls, and Leventhal (1993) also arrived at this conclusion when reviewing past studies from their own laboratory. Monitoring was capable of serving different functions. An individual could, for example, be monitoring the stressor or observing the associated affective response. Also, different outcomes for distress control and adjustment were possible depending on what aspect of the stressful experience was

monitored. The researchers concluded that: "It would be incorrect to describe monitoring as an information intake procedure that facilitates problem-based coping, as monitoring can have different effects depending upon what is monitored and how the monitored stimuli are processed or interpreted" (p. 89).

After acknowledging the existence of problem- and emotion-focused coping and approach and avoidance coping, other researchers have taken an alternative approach to describing coping. Typologies of coping responses have been offered which have combined both of the coping formulations. Billings and Moos (1981), for instance, developed an inventory consisting of active attempts to resolve the stressful event into cognitive and behavioural strategies, while separately clustering responses which supposedly avoid the problem, or at least reduce the emotional tension associated with the stressor. Active-cognitive coping includes both trying to look on the positive side and considering several alternatives for handling the situation. This category thus contains both problem- and emotion-focused elements. Active-behavioural coping refers to overt behavioural attempts to deal directly with the problem and its effects (i.e., problem-focused), whereas avoidance coping refers to attempts to avoid actively confronting the problem (i.e., emotion-focused). Holahan and Moos (1987) successfully used this coping typology with a community sample of adults seeking psychiatric treatment.

Endler and Parker (1990) have identified a typology, similar to Billings and Moos' (1981) consisting of task-oriented coping (i.e., problem-focused), person-oriented coping (i.e., emotion-focused), and avoidance coping. To Endler and Parker, avoidance coping can include either person-oriented strategies or task-oriented strategies. An individual can avoid a particularly stressful situation by seeking out other people (seeking social support) or by engaging in another task rather than the task at hand (e.g., watching television rather than studying for an exam). Another way of classifying coping responses was achieved by Zautra and Wrabetz (1991). Internal consistency reliability analyses suggested two types of coping efforts: active coping efforts and passive coping efforts. Seeking emotional support, taking action, expressing emotions, and gaining assistance characterised active coping efforts. Trying to forget about the stressor and

accepting what happened as something that the individual could do nothing about were related to passive coping efforts. Thus, it is apparent that the coping strategies classified according to their focus are subsumed under the umbrella of the method of coping, that is, problem- and emotion-focused coping efforts can be used by an individual to deal directly with the stressor (approach) or to avoid the stressor (avoidance). Some research has investigated how the constructs of problem- and emotion-focused coping, and approach-avoidance coping are related.

Tobin et al. (1989) extracted three levels of factors that were common to previous coping typologies after conducting a hierarchical factor analysis on a modified version of Folkman and Lazarus' (1980) Ways of Coping Checklist. A hierarchy including eight primary factors, four secondary factors, and two tertiary factors was produced. At the primary level, factors included problem solving, cognitive restructuring, social support, express emotions, problem avoidance, wishful thinking, social withdrawal, and self-criticism. At the secondary level, factors included two types of problem-focused and two types of emotion-focused coping, thus supporting the focus of coping approach described earlier. These were labelled problem engagement, problem disengagement, emotion engagement, and emotion disengagement. Coping strategies at the tertiary level appeared to be organised into engagement and disengagement activities. These higher-order factors resemble the approach and avoidance constructs that have been identified in many previous coping studies. The findings of Tobin et al. suggested that both formulations of coping described the structure of coping, although at different levels.

In summary, in the absence of clear empirical data concerning the structure of coping, theoretical speculation about coping structure has remained inconsistent. Clearly, the contribution by Tobin and his colleagues has provided empirical information about relationships among coping constructs that is a positive step towards resolving some of the discrepancies evident between studies exploring higher-order dimensions of coping. Thus, future studies should consider both the method and the focus of coping formulations when interpreting their findings.

Consistency of Appraisals and Coping Responses

A central theme in interactional psychology of personality concerns whether individuals exhibit consistent appraisals and coping responses across different stressful situations (e.g., Bem & Funder, 1978; Chaplin & Goldberg, 1984). Existing theoretical coping models provide support for both the consistency and variability of appraisals and coping across situations. According to the interactional model of stress and coping, coping is conceptualised as a dynamic process which is a function of the specific situation and the stage of the stressful encounter. Thus, this model emphasises more variability than stability of appraisals and coping responses across situations. In contrast, the trait model predicts that personality characteristics should dispose the person to appraise and cope in similar ways irrespective of the situation (e.g., Averill & Rosenn, 1972). It is important that the issue of coping consistency is resolved because it represents an avenue for designing more effective stress management intervention programs. If individuals demonstrate consistency in coping strategies across different stressful encounters, then individualised interventions can be prescribed in advance.

Studies investigating the consistency of both the individual's appraisals and coping responses have been few and their results equivocal. In a study of how community adults appraised and coped with the stressful events of their daily lives, Folkman et al. (1986a) examined the relationships between personal factors, primary appraisal, secondary appraisal, coping, somatic health status and psychological symptoms. Results showed that primary and secondary appraisal variables were influenced by the situational context. On the other hand, coping showed more stability than variability suggesting that it may have been heavily influenced by personal factors. Opposing findings were reported by Larsson et al. (1988) when investigating the appraisals and coping efforts of police officers in acute, time-limited stressful situations. Primary appraisals were found to be strongly influenced by the situational context, whereas secondary appraisals and coping responses were highly consistent across encounters. The researchers attributed the high consistency effects to selection factors, uniform training practices, and work

socialisation among police officers.

Past studies that have focused on the issue of coping consistency have distinguished between temporal consistency and cross-situational consistency. Temporal consistency is displayed when an individual employs the same coping strategies each time he or she deals with the same situation (Cohen & Roth, 1984). On the other hand, cross-situational consistency involves the use of the same coping strategies across different situations (Stone & Neale, 1984). In general, a review of past literature indicates that greater consistency has been found over time in similar situations than across different contexts (e.g., Compas et al., 1988; Fleishman, 1984; Patterson et al., 1990). These studies can be separated into the following three categories: (1) those investigating temporal consistency (e.g., Averill & Rosenn, 1972; Stone & Neale, 1984), (2) studies examining cross-situational consistency (Bouffard & Crocker, 1992; Carver & Scheier, 1994; Folkman et al., 1986a), and (3) studies investigating both temporal and cross-situational consistency (Compas et al., 1988; Fleishman, 1984; Patterson et al., 1990).

In the first category of studies, researchers have reported that individuals are usually consistent in their coping patterns when dealing with the same situation over time. Averill and Rosenn (1972), for example, examined temporal consistency by repeatedly subjecting subjects to electric shocks. In their experiment, vigilance was defined as listening for a warning signal during the anticipation of an electric shock and nonvigilance was defined as ignoring the warning signal by listening instead to music. An avoidance response was available to one group of subjects if they remained vigilant, while shock was inevitable for another group regardless of the mode of coping used. Although vigilance increased as a function of shock intensity, especially among subjects in the avoidance group, 23% of subjects consistently chose to ignore the warning signal even though the shock was easily preventable. Over time some subjects continued to use the same strategy. Stone and Neale (1984) defined temporal consistency in terms of the particular coping strategy married couples used most often in coping with the same stressful event on two or more days during a 21-day period. The results of their study revealed that, on average, subjects used their most frequent coping strategy on 70% of the

days they responded to the same stressor. Thus, Stone and Neale concluded that "when the same problem is coped with on several occasions, subjects tend to be consistent in their manner of coping with it" (p. 902).

The second category of studies have provided mixed evidence for the consistent use of coping across situations. Bouffard and Crocker (1992) asked individuals with a physical disability to describe their coping efforts for challenging physical activities. With the exception of religion, there was no evidence for the consistent use of the same coping strategies across settings. Kaissidis (1993) conducted two studies to measure the coping responses of basketball referees and players across three and four situations, respectively. In the first study, contrary to predictions, he found that referees employed statistically similar degrees of approach and avoidance coping strategies across situations. He postulated that the consistency in subjects' responses may have been due to the similarity of stress intensity experienced in the three situations and the uniformity of training practices that referees are exposed to. His second study, however, showed that basketball players used significantly different degrees of approach and avoidance responses across situations.

In another group of studies in this category, Folkman et al. (1986a) examined the effects of appraisals and coping on the health status and psychological symptoms of adults. The researchers found that certain coping strategies were highly variable (e.g., seeking social support, confrontive coping, planful problem solving), whereas others were moderately stable (e.g., positive reappraisal, self-controlling). Likewise, Carver and Scheier (1994) investigated the coping strategies used by students two days before an exam, after the exam but before grades were posted, and after posting of grades. Once again, certain types of coping demonstrated cross-situational stability. In this case, use of social support, religion, and alcohol were highly related from before the exam to immediately after the exam. Across the same stages of the encounter correlations for suppression of competing activities and behavioural disengagement were fairly low revealing high variability. The results of these studies suggest that some coping strategies may be more strongly influenced by personal factors, while other coping strategies are

more sensitive to situational conditions.

In the third category of studies, researchers have conducted empirical investigations of coping consistency as a function of both temporal and contextual factors. Compas et al. (1988) examined students' coping efforts in reference to two ongoing stressors (academic and interpersonal) over a period of four weeks. Temporal consistency was tested by performing biserial correlations among coping scores for each of eight strategies at each of the four time points. Most of the correlations (14 of 16) were significant indicating moderate levels of consistency. However, there was little support for cross-situational consistency. Of the eight biserial correlations calculated of each coping strategy for the two events, only two were significant. With the exception of religion, mean correlations for temporal consistency in coping with the same events were greater than correlations for cross-situational consistency for all of the coping strategies. Therefore, patterns of coping were characterised by moderate temporal consistency and low consistency across two different types of stress. Similar results were reported by Patterson et al. (1990) in a longitudinal study of elderly people. Biserial correlations between measures of coping obtained at two different points in time were higher when subjects were responding to similar situations than when the situations were different. Among the specific forms of coping, problem solving and growth seeking were most consistently used to deal with dissimilar situations, while problem solving, advice seeking, growth seeking, and threat minimisation were most consistently used to handle similar events.

Findings from the three categories of studies examining consistency in coping suggest that appraisals and coping with stress are characterised by consistency in responses to the same stressful event and variability in reactions to different stressful situations. It appears that the situation plays a central role in determining the coping strategies an individual will use (Holahan & Moos, 1987; McCrae, 1984). It is also possible that consistency in coping is dependent on the extent of similarity between individuals' appraisals of events. Results have further shown that while certain forms of coping may be consistently used across situations, other forms of coping may be more

variable over the same situations. Hence, apparently personal and situational factors each influence one's choice of coping strategies. In a sporting context, research is needed to examine whether athletes exhibit consistent appraisals and coping efforts within and across stressful situations in competition. Asking athletes to report coping efforts in response to identical situations would greatly facilitate these investigations. Further, examining coping as a function of personal, situational, and environmental factors would seem necessary in generating superior stress intervention programs. The following section will take up this topic and further explore the effects of various factors on the coping process.

Factors Influencing the Coping Process

On the basis of the transactional model of stress (Lazarus & Folkman, 1984), personal dispositions, characteristics of the stressful situation, and environmental factors have each been shown to influence the coping process.

Personal Dispositions

Researchers have empirically examined various determinants of coping such as self-esteem, internal control beliefs, neuroticism, optimism, denial, hardiness, and trait anxiety (e.g., Carver et al., 1989; Fleishman, 1984; Holahan & Moos, 1987; Parkes, 1984, 1986; Scheier et al., 1986; Terry, 1991, 1994). These characteristics of the person assume that people are behaviourally and cognitively consistent across situations. A review of the theoretical and empirical literatures has highlighted the relevance of generalised control beliefs and self-esteem as key dispositional variables in influencing an individual's coping activity (Folkman, 1984). Also, researchers have recently begun to explore the role of coping styles to see if individuals have particular coping preferences or patterns when responding to stressful situations.

Internal Control Beliefs. Generalised beliefs about control concern the extent to which individuals assume they can control outcomes of importance. The best known

formulation is Rotter's (1966) concept of internal versus external locus of control. An internal locus of control refers to the conviction that events are contingent upon one's own behaviour, whereas an external locus of control refers to the conviction that events are contingent upon luck, chance, fate, or powerful others. Consequently, individuals who have strong internal control beliefs are expected to use more problem-focused coping and less emotion-focused coping than persons with external control because they believe that their own efforts will be effective in altering the outcome of a stressful encounter (Lazarus & Folkman, 1984). There is consistent evidence supporting this proposal (e.g., Carver et al., 1989; Parkes, 1984; Terry, 1991, 1994).

Anderson (1977), for example, reported that, in comparison with externals, managers of businesses damaged by floods who had an internal locus of control relied more on task-centred strategies and less on emotion-focused strategies. Parkes (1984) found that in situations amenable to change, people with an internal locus of control used more direct coping efforts and fewer attempts at suppression, whereas externally oriented persons showed the reverse pattern. Similar results were obtained by Terry (1991) in a prospective study of students facing a mid-year exam. She reported that internal control beliefs emerged as distinctive predictors of instrumental action, whereas escape/self-blame was associated with external control beliefs. In a later study examining students' coping responses to events occurring over a six week period, Terry (1994) confirmed her previous findings. As expected, minimisation, an emotion-focused coping strategy, was favoured by individuals with external control beliefs, although internal control beliefs were not related to any problem-focused related strategies.

In a sport setting, very little research has been conducted on the influence of locus of control on either coping responses or performance, although research (e.g., Finn & Straub, 1977; Martens, 1971) has suggested that an internal locus of control is better and more mature than an external locus of control. In one study, Anshel (1979) observed that internals performed better than externals on the pursuit rotor task when feedback was positive, but worse when feedback was negative. Further, Chalip (1980) proposed that internals demonstrate less performance disruption under stress than externals and are

better able to use task-centred coping behaviours. Thus, athletes who effectively cope with stress may be internals who take responsibility for, and learn from their actions.

Folkman (1984) believed that both generalised beliefs about control and situational appraisals of the possibilities for control in a specific stressful encounter should be examined if a full understanding of the relationship between control and coping was to be achieved. A study by Folkman, Aldwin, and Lazarus (1981) illustrated the importance of both of these variables. Contrary to what was expected, the most internal subjects did not use more problem-focused coping strategies than the most external subjects; nor did the externals use more emotion-focused coping strategies than the internals. In contrast, Folkman et al. observed that situational appraisals of control were strongly related to coping activities.

In describing the interaction between generalised control beliefs and situational appraisals of control, Folkman (1984) suggested that generalised control beliefs would have their greatest influence when a situation was ambiguous or novel. Under these conditions situational cues related to the outcome and to the extent to which the outcome can be controlled are minimal and so personal factors will shape the meaning of the situation for the individual. Accordingly, in highly ambiguous situations individuals with an internal locus of control will appraise the situation as controllable, whereas individuals with an external locus of control will appraise the situation as uncontrollable. On the other hand, when a situation is not highly ambiguous, it would be expected that appraisals about controllability would be influenced more by situational characteristics than by generalised beliefs.

Self-Esteem. High self-esteem is characterised by positive feelings and liking for oneself (Rosenberg, 1979). Chan (1977) proposed that individuals with high self-esteem tend to have a past history of coping with stress, and are, thus, likely to have confidence in their ability to deal with negative life events. Studies have demonstrated that individuals with high self-esteem engage in positive, active attempts to cope with stressors, whereas those low in self-esteem tend to become preoccupied with distress

emotions, and are more likely to disengage from their goals when under stress (Carver et al., 1989; Fleishman, 1984; Holahan & Moos, 1987; Pearlin & Schooler, 1978).

Fleishman (1984) found that people with high self-esteem chose to take direct action at work and negotiate in marriage rather than protect their self-evaluation through denial methods of coping. These findings suggested that self-esteem was more consistent with a problem-oriented approach to coping than with a defensive, repressive form of coping. Holahan and Moos (1987) supported these findings reporting that individuals with high self-confidence, a variable that is conceptually similar to self-esteem, adopted more active and fewer avoidance strategies than individuals low in self-confidence.

Recently, however, other studies have found no significant relationships between self-esteem and problem-focused coping strategies (Dunkel-Schetter, Folkman, & Lazarus, 1987; Kaissidis, 1993; Terry, 1991, 1994). Dunkel-Schetter et al. found that individuals with high self-esteem reported receiving more emotional support, an emotion-focused coping strategy, from others than subjects with low self-esteem. Likewise, Terry (1991) reported that self-esteem emerged as a positive predictor of seeking emotional support. She proposed that these feelings may have been a reflection of the fact that perceived social adequacy is an important dimension of self-esteem. Individuals with low opinions of their ability to interact with others are likely to be reluctant to seek emotional support from others. In Terry's (1994) later study, self-esteem was related to only one form of coping, instrumental action, and the effect was very weak.

In a study examining the relationship between various personal dispositions and coping responses in acute sporting situations, Kaissidis (1993) reported unexpected findings. He found that basketball players who scored high in self-esteem used more avoidance and less approach coping strategies when responding to sources of stress. These results appear to be inconsistent with sport psychology research showing that: (a) more successful athletes attribute their success to approach-related strategies such as effort and resolve, ability, and commitment (Bukowski & Moore, 1980; Roberts & Pascuzzi, 1979); and (b) elite competitors are characterised by higher levels of self-esteem (Mahoney, 1989; Taylor, 1987). Kaissidis (1993) suggested that players with elevated

levels of self-esteem may have used more avoidance coping strategies in the hope that things would resolve themselves later on. Other studies are needed to verify these findings.

Coping Style. When an individual demonstrates a preference for particular coping responses, he or she is identified as possessing a coping style. Two of the most prevalent forms of coping styles in the coping literature are the approach-avoidance (Roth & Cohen, 1986) and monitoring-blunting constructs (Miller, 1987). These constructs were discussed earlier in the section examining the categorisation of coping responses according to their focus (problem- and emotion-focused) or their method (e.g., approach and avoidance). While this previous section described and interpreted various typologies of coping (styles), the present section will examine the influence of coping styles upon individuals' coping responses.

According to Compas (1987), coping styles can emerge in either of two ways. First, people may display consistent coping patterns across different situations, in which case coping styles are considered analogous to traits, and second, people may cope similarly over time within a given situation. These two ways of viewing coping styles resemble the coping consistency categories discussed earlier. A review of related literature revealed that greater consistency in coping was found over time in similar situations than across different contexts (e.g., Compas et al., 1988; Patterson et al., 1990). Lazarus (1990) argued that aggregating subjects' coping responses over a wide variety of situations would obscure "the functional connection between coping and the changing demands of the situation" (p. 7). Failing to consider situational characteristics would help to explain why the predictive value of coping styles has been low in past studies. Studies that have taken into account the characteristics of the stressful situation, however, have often supported the existence of coping styles (e.g., Carver & Scheier, 1994).

Miller (1992) is a strong advocate for individuals possessing stable coping styles that only manifest themselves in situations that are highly stressful. She believed that a

distinction between monitors and blunters should emerge in response to aversive events, but not in response to nonadversive conditions. Research has supported her predictions. For example, Phipps and Zinn (1986) reported that both the subjective and physiological concomitants of monitoring and blunting were only apparent under high threat conditions. Other studies have similarly shown that personal dispositions have more marked effects at more severe levels of stress (e.g., Denney & Frisch, 1981; Parkes, 1986).

Additional evidence for the importance of coping preferences in determining an individual's coping response comes from studies by Carver and his colleagues (Carver et al., 1989; Carver & Scheier, 1994). In their first study, Carver et al. used their COPE scale to measure what university undergraduate students usually did and what they actually did when experiencing stressful events. Situational characteristics comprising the importance and the controllability of the event were measured too. Results revealed modest correlations between coping dispositions and situational coping responses. Turning to religion, alcohol-drug disengagement, seeking social support for emotional reasons, and focus on and venting of emotions demonstrated the strongest associations. The researchers attributed the modest results to the fact that students had reported dissimilar situations, and that their appraisals of importance and controllability had varied across events.

To further examine the associations of dispositional coping styles with situational coping responses, Carver and Scheier (1994) conducted a similar investigation, although this time they had students report coping efforts across three stages of an exam. As before, dispositional coping predicted comparable situational coping at modest levels for most of the coping scales. In particular, the strongest correlations were displayed by religion, use of alcohol, positive reframing, and mental disengagement. Overall, results of both studies were similar even though the students in the second study had reported coping in response to the same stressful event. These findings support the concept of coping styles but also emphasise the value of assessing situational appraisals.

Of further interest to the present thesis is how more traditional personal disposition variables relate to coping styles. Carver et al. (1989) also investigated this issue by

having students complete several measures of personal dispositions (optimism, self-esteem, hardiness, locus of control beliefs, Type A tendencies, trait anxiety, and social desirability) as well as a measure of general coping style (monitoring and blunting). Analyses of the data showed moderate correlations between most of the personal dispositions and the coping style scale suggesting that personal dispositions and general coping preferences are not identical and may, in fact, play complimentary roles in situational coping. Low to modest correlations were also found in Kaissidis' (1993) studies with basketball referees and players, in which he assessed a number of dispositional variables including optimism, self-esteem, and two general coping styles (monitoring-blunting and approach-avoidance).

Although Carver et al. (1989) and Kaissidis' (1993) studies only found modest correlations between traditional personal variables and situational coping, previous research has demonstrated that global traits such as optimism, locus of control, neuroticism, and self-esteem are linked to situational coping activities (e.g., Parkes, 1984, 1986; Scheier et al., 1986; Terry, 1991). In view of these results, researchers have recommended that future studies should consider the role of coping styles and personal dispositions in the prediction of situation-specific responses to stress (Carver et al., 1989; Terry, 1991).

In summary, while research evidence concerning the importance of dispositional coping styles and traditional personal dispositions on individual coping responses has been equivocal, researchers are in agreement regarding the potential benefits of such information:

> The role of individual differences in coping dispositions as potent predictors of an individual's amenability to different intervention approaches deserves greater consideration. Failure to consider these individual difference variables may result in an overall weakened effect of an intervention in that significant benefits for some patients are dampened by a lack of effect for others (Ludwick-Rosenthal & Neufeld, 1988, p. 388).

Of course, if these aspirations are to be realised investigations must proceed to measure coping strategies in terms of the accompanying situational characteristics of stressful events. Only then can the identification of coping styles better assist in matching

individuals to the appropriate intervention program.

Situational Characteristics

Parkes (1986) referred to situational characteristics as being "related to the immediate nature of the stressful transaction, which was the specific focus of the individual's coping attempts" (p. 1279). Lazarus and his colleagues (Folkman & Lazarus, 1980; Lazarus & Folkman, 1984) argued that situational characteristics, including the stressful demands of a situation, played an important role in shaping the coping choices people made. In studying coping in relation to specific stressful episodes, research has shown that one's use of coping strategies is a function of levels of appraised stress (Anderson, 1977; Terry, 1991), perceived control (Folkman & Lazarus, 1980; Parkes, 1984; Stone & Neale, 1984), and particular types of events (Billings & Moos, 1981; Bouffard & Crocker, 1992; McCrae, 1984; Parkes, 1986; Patterson et al., 1990). Clearly, situational characteristics can be examined in many different ways. Situational characteristics to be discussed here include perceived stress and controllability, and appraisal categories.

Perceived Stress. An event has been defined as stressful when an individual perceives that it represents a threat to his or her well-being (Lazarus & Folkman, 1984). Lazarus and Folkman proposed that in highly stressful situations, individuals would utilise fewer problem-focused strategies and more emotion-focused strategies than in less stressful situations. These proposals have been derived from Janis and Mann's (1977) conflict model of decision making in which excessive threat leads to ineffective information gathering and evaluation. Lazarus and Folkman (1984) argued that these reductions in capacities for both information processing and problem solving impaired the development of problem-focused strategies when levels of stress were high. Further, they proposed that in highly stressful situations individuals would need to use tension-reducing strategies, or emotion-focused coping strategies, to cope with the emotional distress generated.

Evidence for these proposals has been equivocal. Anderson (1977) provided support for these proposals when he reported that a high level of perceived stress in managers of businesses damaged by floods was associated with a reliance on emotion-focused strategies. Additional support comes from a study by Endler and Parker (1990) who assessed various anxiety and coping measures with undergraduate students. A positive relationship was found between high state anxious students and emotion-oriented coping activities, whereas low state anxious students tended to use task-related coping strategies. The researchers stated that these results accurately reflected the anxiety literature with respect to elevated feelings of distress. In this condition negative thoughts and feelings, sweaty hands, nausea, and increased heart rate are typically associated with emotion-focused coping activities. Less clear results, however, have been reported in other studies.

While research by Billings and Moos (1981) and Mattlin et al. (1990) failed to find evidence associating severity of stress with any type of coping, mixed findings were recorded in studies by Aldwin and Revenson (1987) and Terry (1991, 1994). In a longitudinal community survey of adults, Aldwin and Revenson explored the relation between perceived stress and coping strategies. Respondents used a revised version of the Ways of Coping Scale and reported using both problem-focused (cautiousness, instrumental action, negotiation, support mobilisation) and emotion-focused coping strategies (self-blame, escapism) when highly stressed. Equally ambiguous results were reported by Terry (1991). She found that seeking emotional support and instrumental action were both predicted by highly stressed students taking an exam. In a later study, Terry (1994) obtained other unexpected results. Students indicated employing minimisation, an emotion-focused form of coping, when they appraised low, rather than high, levels of stress. In attempting to justify these findings, she posited that relationships between stress appraisals and coping may be a function of the nature of the encounter under consideration. In certain situations, threat appraisals may cause an individual to focus his or her attention on relevant cognitions when attempting to deal with problems. Some support for this proposal has been observed in studies conducted

with athletes.

Madden et al. (1990) identified patterns of coping related to low, mid, and high levels of perceived stress reported by competitive basketball players when experiencing a slump in personal performance. Results showed that subjects reporting high levels of competitive stress used increased effort and resolve, problem-focused coping, social support-seeking, and wishful thinking coping strategies more frequently than subjects reporting low competitive stress. Although these findings appear to contradict the results of previous studies conducted in the social psychology domain (e.g., Anderson, 1977; Endler & Parker, 1990), Madden et al. believed that they were consistent with the sport psychology literature. They argued that as effort and resolve were considered necessary for successful performance in sport, coping strategies reflecting these attributes were employed by athletes. Kassidis' (1993) findings with basketball referees and players appeared to verify this contention. He found that both groups of subjects used more approach coping strategies than avoidance when dealing with several sources of acute stress. The agreement between these findings in sport seems surprising given that Madden et al. focused on a chronic stressor, a player experiencing a slump in basketball performance, while Kaissidis addressed the responses of players to acute stressors, such as missing a lay-up or receiving a "bad" call from the referee. In acute stress situations in a sport such as basketball where play is ongoing, one would not expect a player to have the necessary time to execute coping strategies of an approach nature which require more cognitive activity.

It seems that the appraised stressfulness of a situation does influence individuals' coping responses. Further, studies should distinguish between sport and non-sport contexts when examining this relationship. While studies in the non-sport literature suggest that individuals employ emotion-focused coping strategies when highly stressed, evidence from sport indicates the opposite pattern, that is, that high levels of stress are associated with problem-focused coping strategies.

Perceived Control. Perceptions of control are part of secondary appraisal. They include situational perceived control and self-efficacy expectancies. Situational perceived control refers to the person's judgement or belief about whether he or she can do something to change a specific situation (Folkman, 1984). Self-efficacy expectancies, on the other hand, reflect an individual's appraisal of his or her ability to perform the coping strategies necessary to meet the demands of a situation (Bandura, 1977). These two components of secondary appraisal are instrumental in determining the coping strategies people will use in a stressful situation. It has been suggested that in situations appraised as controllable or where high levels of self-efficacy exist problem-focused strategies will be utilised more than emotion-focused strategies. In contrast, it is expected that people who appraise the situation as offering controllability or who have low levels of self-efficacy will be more emotionally distressed, and therefore, rely on emotion-focused strategies.

A number of studies have found evidence for the influence of control on coping. Folkman et al. (1986a), for example, examined the relationships between primary appraisal, secondary appraisal, coping responses, and encounter outcomes of community-residing adults. They found subjects accepted more responsibility and used more confrontive coping, planful problem-solving, and positive reappraisal in encounters they appraised as changeable, and more distancing and escape-avoidance in encounters they appraised as having to be accepted. Other studies have reported similar results. Investigating the effects of situational appraisals of control on coping, Carver et al. (1989) reported that subjects who viewed situations as changeable engaged in more active coping, planning, and seeking of social support for instrumental reasons, compared with subjects who said that the situation was one that had to be accepted. Further, the second group of subjects reported higher levels of both acceptance and denial than were reported by those whose situation was potentially changeable. In another study, Patterson et al. (1990) found that there was significantly less reliance on emotion-focused coping when an event was regarded as changeable. However, events appraised as unchangeable generated significantly more emotion-focused coping, threat minimising and growth

seeking. More recently, in his study involving basketball players, Kaissidis (1993) found that perceived control was highly correlated with approach coping, and negatively correlated with avoidance coping. In general, results from all of these studies suggest that active approach-oriented coping strategies are favoured in situations appraised as controllable, whereas avoidance strategies that distance the individual from the stressor are used in less controllable situations.

Much of the coping research is based on the assumption that having control over what is happening in a situation has stress-reductive effects on a person. Additionally, it has been suggested that control need not be actually available but only be perceived to be available for stress reduction to occur (Averill & Rosenn, 1972). However, the research evidence examining the relationship between perceived control and perceived stress is unclear. Two sport studies illustrate this inconsistency. Madden et al. (1990) noted that basketball situations endorsed as highly stressful were related to situations in which others were in control or took control of the situation (e.g., My team is losing and the opposition is holding up play by keeping the ball away from us). But in separate studies with basketball players and referees, Kaissidis (1993) observed that perceived controllability was unrelated to perceived stress. Several proposals have been offered to resolve the conflicting findings in the literature.

First, Folkman (1984) suggested that having control over a situation could be stress inducing when exercising it generated costs in other areas or conflicted with strongly held values and commitments. For example, a patient may decide to undergo chemotherapy treatment to control cancer, but experience distress as a result of the physical and psychological side-effects of the treatment. Second, it has been proposed that control can be detrimental when having it is antagonistic to a person's preferred coping style (e.g., Averill, O'Brien, & Dewitt, 1977; Martelli, Auerbach, Alexander, & Mercuri, 1987; Miller & Mangan, 1983; Shipley, Butt, & Horowitz, 1979). In the study by Martelli et al., patients about to undergo preprosthetic oral surgery were presented with stress management interventions according to their coping styles. Better adjustment, increased satisfaction, and lower self-reported pain were obtained when high information-

preference subjects (monitors) were given a problem-focused intervention and when low information-preference subjects (blunters) were given an emotion-focused intervention. A third proposal has been put forward by Ludwick-Rosenthal and Neufeld (1988). Apparently, some individuals can become more anxious after acquiring information and control because of the increased sense of responsibility associated with the outcome. Finally, having to synthesise control-relevant information can sometimes create further stress as the individual struggles with multiple coping options and self-imposed expectations to manage the situation successfully.

In addition to examining the influence of control on feelings of stress, researchers have investigated the relationship between perceptions of control and the primary appraisals of threat and challenge. Folkman (1984) suggested that when situational control beliefs are high people will experience an increased intensity of challenge appraisals, whereas when feelings of control are low threat appraisals will dominate. In support of these proposals, Folkman and Lazarus (1985 found that students who felt in control of an exam experienced greater challenge emotions. However, threat emotions were unrelated to perceptions of control. The researchers attributed their findings to the students' primary appraisals of the exam. They suggested that the exam's outcome may not have posed a significant threat to the students.

In summary, research has shown that perceived control influences individuals' coping responses. High perceptions of control appear to be positively related to approach coping responses and negatively related to avoidance coping, although these findings are far from universal. Also, findings concerning the relationships between perceived control and perceived stress and between perceived control and primary appraisals are equivocal and demand further investigation.

Appraisal Categories

An alternative approach to assess situational characteristics has been to classify stressful situations in subjective terms. Consistent with the transactional model's emphasis on cognitive appraisal, this approach has focused on relations between coping

and the individual's perceptions of the stressful situation. Typically, the individual appraises the situation as a loss, challenge, or threat (Bouffard & Crocker, 1992; Carver & Scheier, 1994; Folkman & Lazarus, 1985; Larsson et al., 1988; McCrae, 1984).

Studies have consistently found significant relations between situational appraisals and reported coping strategies. McCrae (1984) adopted this perspective when stressful life events were divided into losses, threats, and challenges. In response to challenging events, such as having a child or starting a new job, individuals tended to show a wide range of responses, including rational action, perseverance, positive thinking, intellectual denial, and humour. In contrast, those who faced a threat to their health or well-being often relied on the use of faith, fatalism, and wishful thinking, while loss appraisals were associated with faith, fatalism, and expression of feelings. In Folkman and Lazarus' (1985) study of emotion and coping during three stages of an exam, threat and challenge emotions were also associated with different forms of coping. As anticipated, problem-focused coping and self-isolation were involved in challenge emotions, whereas wishful thinking and seeking social support were involved in threat emotions. Finally, Bouffard and Crocker (1992) asked individuals with a disability to report coping reactions to challenging physical activities. Their findings were consistent with those of the previous two studies described, and indicated that perceived challenge was characterised by high levels of problem-focused strategies (active coping, planning) and low levels of emotion-focused strategies (religion, focus on and venting of emotions). Results from these studies indicate that challenge appraisals are associated with active coping efforts, and that threat appraisals call forth avoidance-type strategies. Not all studies in this area, however, have recorded such consistent findings for challenge and threat appraisals.

Replicating an earlier study, Carver and Scheier (1994) found that students who felt threatened undertaking an exam used mental disengagement strategies to distract themselves from their worries. But no associations were found between challenge perceptions and coping. Interpreting their results, Carver and Scheier suggested that feelings of challenge might be far less responsive to coping than feelings of threat. The researchers concluded that further research of the links between distress emotions and

coping efforts is needed to examine whether these processes differ in situations appraised as threatening as against those appraised as challenging.

Environmental Factors

Environmental factors refer to the psychosocial and physical characteristics of the environment in which the stressful transaction occurs (Parkes, 1986). Research has demonstrated that the environment in which a particular stressful episode occurs influences the types of coping strategies used (e.g., Billings & Moos, 1981; Carver et al., 1989; Fleishman, 1984; Folkman & Lazarus, 1980; Holahan & Moos, 1987; Parkes, 1986). Coping efforts for stressful episodes have been compared in qualitatively different environments. This has required independent raters assigning these episodes into content categories such as work and family settings (Pearlin & Schooler, 1978).

For instance, Billings and Moos (1981) examined six types of recent stressful life events (illness, death, economic, children, other interpersonal, and other noninterpersonal) to determine if different categories of coping responses were more frequently used in response to different events. They reported that problem-focused coping was used most in dealing with illness and least in dealing with death. Emotion-focused coping was used particularly with other noninterpersonal events and child-related problems. Folkman and Lazarus (1980) compared contexts of work, health, and family and found that problem-focused coping was used more at work, while emotion-focused coping was employed to deal with health stressors. The researchers proposed that work represented an encounter that the person felt could be acted upon whereas one's health constituted an encounter judged as requiring acceptance. Thus, more problem-focused strategies were used in transactions involving work-related matters, whereas more emotion-focused strategies were employed in health-related areas.

Further studies have classified stress on the basis of objective characteristics. Fleishman (1984) reported that an active strategy involving advice seeking was positively related to stressors in the marital and parental areas, and that an avoidance coping strategy involving selective ignoring was positively associated with stressors in the marital and

work spheres. More recently, Mattlin et al. (1990) in a large-scale analysis of situational determinants of coping in response to a wide variety of stressful life events and chronic difficulties, confirmed the importance of contextual factors in the coping process. Among their findings was that avoidance was a comparatively uncommon strategy among people coping with a practical problem. Active coping, on the other hand, was least likely in response to the death of a loved one. Also, religion was most likely to be used in response to long-term illness or the death of a loved one and least likely to be used in response to practical or interpersonal problems. Consistent with previous investigations (e.g., Billings & Moos, 1981; Folkman & Lazarus, 1980; Pearlin & Schooler, 1978), these findings indicate that practical problems call forth active coping efforts.

Combined Effects of Personal and Situational Characteristics on Coping

As previously discussed, the transactional model of stress maintains that stress occurs as a result of a relation between personal and situational factors. This approach implies that individuals' perceptions and coping responses to particular stressful events may be influenced not only by the separate contributions of personal and situational factors but also by the combined effects of these two sets of variables. Researchers have proposed three models to describe the effects of personal and situational variables on coping and adjustment: the additive model, the mediating model, and the interactive model (e.g., Aldwin & Revenson, 1987; Parkes, 1986; Terry, 1991).

According to the additive model, both personal and contextual variables have direct effects on the coping process. Thus, personal dispositions and situational appraisals are each expected to have similar effects on coping. The mediating model suggests more complex relations among the variables. Adhering closely to Lazarus and Folkman's (1984) cognitive-phenomenological model of stress, this proposal assumes that personal factors have only indirect effects on coping, via their effects on appraisal. Finally, the interactive model assumes that coping is a function of the interplay between personal and situational variables. Based on this model, personal dispositions are expected to

influence coping depending on the situational appraisals made at the time. Mixed results have been reported by researchers who have investigated either the additive, mediative, or interactive effects of personal and situational factors on coping and adjustment (e.g., Aldwin & Revenson, 1987; Kaissidis, 1993; Parkes, 1986; Terry, 1991, 1994).

Studies that have examined the effects of various personal and situational variables on coping responses and adaptation can be categorised into three groups. They include studies that have: (a) focused on the additive model, (b) looked for evidence of both the additive and the interactive models, and (c) tested the efficacy of all three models. In the first category of studies, Pearlin and Schooler's (1978) examination of stress and coping with 2,299 people illustrates the additive model. Respondents indicated frequency of use of specific coping activities and the degree of stress faced in the four role areas of occupation, finances, marriage, and parenthood. Measures of the personal dispositions of mastery, denial, and self-esteem were obtained too. Results highlighted the importance of peceived controllability in the coping process. Personal dispositions were found to be more helpful in reducing subjects' perceived stress in areas over which they felt they had little direct control (e.g., finances and occupations). But when dealing with problems that offered opportunities for control such as in marriage and parenting, coping responses were more helpful than personal dispositions. These results suggest that the individual's personal dispositions play a more important role in sustaining well-being in uncontrollable work-related areas, whereas coping responses are more helpful for reducing stress in interpersonal relations.

Holahan and Moos (1987) also found evidence for the additive model. They examined personal and contextual predictors of active and avoidance coping strategies in a community sample of over 400 normal adults and in a sample of over 400 persons entering psychiatric treatment for unipolar depression. Sociodemographic factors of education and income, personality dispositions of self-confidence and an easygoing manner, and contextual factors of negative life events and family support each made a significant incremental contribution to predicting active and avoidance coping among both groups of subjects, a finding that encouraged the researchers to advocate the examination

of coping within a broadly framed and integrative perspective.

Studies in the second category have examined the additive and the interactive models (e.g., Aldwin & Revenson, 1987; Martin & Lefcourt, 1983; McCrae & Costa, 1986; Mitchell & Hodson, 1983; Parkes, 1986). For example, McCrae and Costa examined the interactions among personal dispositions, coping responses, and perceived happiness. They reported that utilisation of efficient strategies was associated with subsequent reported happiness and life satisfaction, a result that was due to the interaction between personal dispositions, effective coping strategies, and perceived happiness. Parkes reported evidence for both additive and interactive models. Using data from 135 student nurses, she investigated the influence of personal, situational, and environmental variables upon coping. The coping dimensions assessed included general coping, direct coping, and suppression. Multiple regression analyses revealed that all three factors were each of importance as predictors of coping responses, and that, both additive and interactive effects contributed significantly to the explained variance in coping scores. Specifically, consistent with transactional theories, direct coping and suppression were best predicted by an interactive model. General coping, on the other hand, was determined by an additive model. Out of the three factors personal and situational variables were the most important influences on both direct coping and suppression. However, for direct coping, all three types of variables were significant predictors, whereas for suppression, environmental variables made only a slight significant contribution to the overall model. In contrast, environmental factors were the best predictors for general coping. Thus, her results suggested that personal, situational, and environmental variables may have additive and interactive effects on coping.

Aldwin and Revenson (1987) obtained similar results to Parkes (1986). Investigating the relation between coping strategies and psychological symptoms in a longitudinal community survey of 290 adults, both models were found to be operative. Specifically, additive model effects were confined to emotion-focused coping, while interactive effects were found with problem-focused coping. Thus, the authors posited that how one deals with emotions in a stressful situation may be more a function of an

individual's disposition, whereas problem-focused strategies may be more dependent on situational constraints.

Within this second category of studies, Kaissidis (1993) reported conflicting findings in his investigations with basketball players and referees. For basketball athletes, both personal dispositions and situational appraisals made a significant contribution in predicting approach coping responses, but only situational appraisals predicted avoidance coping. Also, correlations between the two sets of factors showed that they were unrelated, thus lending support to the additive model of coping. However, additional data from basketball referees provided evidence for the interactive model. Although relationships describing the predictive validity of personal and situational factors on coping responses were similar to those obtained earlier, both sets of variables were found to be moderately correlated. As well as providing evidence for both additive and interactive models, these findings suggest that in acute stress situations avoidance is a function of situational appraisals, whereas approach coping is influenced by both personal and situational factors. This pattern of relationships between predictor variables and coping responses contrasts with those described in the studies by Alwin and Revenson (1987) and Parkes (1986).

In the third category of studies that have examined the ways in which personal and situational factors influence coping responses, Terry (1991, 1994) conducted two investigations to examine the effects of the additive, interactive, and mediating models on coping. In her first study, Terry (1991) examined the effects of personal coping resources and situational appraisals on the coping activities of students facing a mid-year exam. Personal coping resources included generalised control beliefs, self-esteem, neuroticism, denial, and social support, whereas variables reflecting the person's appraisal of the specific situation included level of associated stress, perceived control, self-efficacy, and event importance. Results supported the additive model with both resource and appraisal variables being influential in the prediction of coping. However, there was a lack of evidence to support the proposal that situational appraisals mediate the effects of resources on coping. Instead, the data suggested that both coping resources

and situational appraisals had direct effects on coping. Regarding the third model, there was some support for the two sets of variables having interactive effects on coping. A number of interactions (involving denial, internal control beliefs, social support, and self-esteem) were consistent with the proposal that coping resources buffer the negative effects of threat (high stress, low situational control, low self-efficacy, and high importance) on coping. However, there were also a number of others (involving neuroticism) that were not consistent with the interactive model. While acknowledging the importance of including both personal and situational factors in studies of coping, Terry observed that the set of predictors had not accounted for large amounts of variance in the measures of coping. This prompted her to recommend that future research examine the role that coping styles play in the prediction of situation-specific responses to stress.

Terry (1994) obtained similar findings in a later study. Once again, she found strong evidence for the additive model, in addition to some support for the mediating model. Of prime significance was that individuals' relatively enduring coping resources and their situational appraisals exerted significant influences on the majority of the measures of coping. Further, personal dispositions accounted for greater proportions of variance than situational appraisals for the measures of instrumental action, escapism, minimisation, and seeking meaning. These findings reinforce the view that both stable and situational variables affect coping.

In summary, although the evidence supporting the additive, mediative, and interactive models is equivocal, research in this area has confirmed that coping responses are determined both by the enduring characteristics of the person and their environment, and their appraisals of the situation. In this context, research should not limit its focus to additive models alone but should also consider the role of interactive effects in the prediction of coping. Finally, the scope of variables thought to influence coping should be widened to include an individual's coping style.

Coping Effectiveness

When examining coping processes, Elliot and Eisdorfer (1982) proposed that stressful transactions be partitioned into three interrelated yet distinct components: the stressor itself, the person's response or efforts to cope, and the outcome of the stress occurrence and response sequence. Previous sections of this literature review have discussed studies addressing the first two of these components. It is the third component that remains the most controversial. Menaghan (1982) posed the question, "What criteria are appropriate for judging whether a given coping style or effort is effective?" (p. 221). Roth and Cohen (1986) in their review of the stress and coping literature, acknowledged that the non-systematic conceptualisation and measurement of approach and avoidance coping, and of indicators of coping effectiveness have made it difficult to answer this question. Thus, there is no clear consensus as to which coping strategies or coping styles are most effective in resolving problems, preventing future difficulties, or relieving emotional distress. It appears that many factors need to be considered when evaluating the effectiveness of coping strategies. These factors include: (a) flexibility of coping responses, (b) outcome measures of successful coping, (c) the point in time at which effectiveness is evaluated, (d) the controllability of aspects of the stressful situation, and (e) the compatibility between coping style and certain demands of the stressful situation (Krohne, 1988; Lazarus & Folkman, 1984; Roth & Cohen, 1986).

Flexibility of Coping Responses

Lazarus and Folkman (1984) identified flexibility in the way a person copes as a dimension on which coping effectiveness might be evaluated. An individual demonstrates coping flexibility by changing his or her coping strategies either in response to the changing demands of different stressors or to the same stressor. From this perspective maladaptive responses to stress are displayed by individuals who exhibit high levels of consistency or rigid patterns of responding across different stressful episodes.

Pearlin and Schooler (1978), for example, found that the more coping responses people employed in marriage, parenting, and household economics, the lower the probability that strains would result in emotional stress. Similar results were reported by Zautra and Wrabetz (1991) in their examination of the relationships between coping success and psychological distress with older adults. Efficiency in coping with a health problem was associated with less distress only for those individuals who reported many active coping efforts. Mattlin et al. (1990) investigated the issue of coping effectiveness by defining respondents either as passive or versatile copers. Passive subjects reported that they used each coping strategy "not at all" or only "a little," whereas versatile copers had a profile of using virtually all strategies. Results revealed that versatility was associated with effective adjustments to stress. However, passive coping was also associated with positive emotional adjustment, particularly in dealing with high-loss and high-threat situations and for difficulties in interpersonal relationships. The researchers suggested that both versatile and passive efforts to cope may be adaptive depending on the situation faced. In general, these studies indicate that new demands require new ways of coping, and thus, no single coping pattern or strategy is perceived as being effective for all types of stress.

Outcome Measures of Successful Coping

The most common method used to assess coping effectiveness entails respondents making self-ratings of variables such as their performance, emotional status, and how useful a particular strategy or approach was to them. Zautra and Wrabetz (1991) maintained that "perceptions of one's own coping success should contribute to the prediction of overall distress beyond other indicators of individual differences in coping ability and outcome" (p. 801). They provided two reasons for this. First, subjective appraisals of coping success reflected the quality of the individual's coping efforts that could not be explained by personal dispositions, and second, these interpretations helped promote adaptation to stressful events. In accordance with these premises, studies have indicated two ways of measuring successful outcomes, self-evaluations of coping

efficacy, and the absence of lasting negative life changes reported after the occurrence of a major stressor.

Coping efficacy refers to subjective assessments of satisfaction with one's coping response to an event (Zautra & Wrabetz, 1991). This approach has been used in studies to assess perceived success in coping with specific life stressors such as major health problems or losses (e.g., Zautra & Wrabetz, 1991), daily stressful encounters (e.g., Aldwin & Revenson, 1987; Folkman et al., 1986a), and with acute, time-limited stressful job events (Larsson et al., 1988). Some of these studies have provided evidence that the value of self-efficacy judgements in coping with stressful events may depend on how much effort the person expended in attempting to cope. For instance, Aldwin and Revenson found that coping responses interacted with coping efficacy to predict mental health. When subjects rated their coping efficacy as high certain types of problem-focused coping were positively associated with psychological adjustment. Similarly, Zautra and Wrabetz reported that perceptions of coping efficacy interacted with coping responses in predicting distress for subjects with health downturns. When individuals perceived their coping efforts as successful their levels of emotional distress decreased.

The second way of assessing coping success is to identify how widespread the negative effects of the stressful event have become. From such an assessment inferences may be made in relation to the success of the person in adapting to the event. Zautra and Wrabetz (1991) also used this method when assessing the coping successes of older adults. The researchers asked each subject to identify negative changes in major areas of life (e.g., social, family, economic) that had resulted from major illness or loss-related events. Results showed that, not only were negative changes reported more frequently in response to major losses, but that those same changes were associated with reports of greater psychological distress. These findings suggest that awareness of negative consequences may lead respondents to lower their ratings of coping efficacy.

Although subjective appraisals of coping efficacy and information concerning post-stressor life changes represent useful ways of measuring coping success, Bolger (1990) asserted that studies that had adopted these methods shared a common methodological

problem. With few exceptions (e.g., Bolger, 1990; Felton & Revenson, 1984; Menaghan, 1982), studies had tended to use cross-sectional designs leaving issues of causal directionality unresolved. Bolger addressed this limitation by conducting a prospective study investigating the interrelationships of personality, coping, and stress outcomes during a medical school entrance examination with college students. Obtaining measures of coping efforts, psychological distress, and performance indicators at various times before and after the exam, in addition to individual-difference variables before the event, Bolger was able to demonstrate that personality influenced the coping strategies people selected and that those strategies influenced subsequent outcomes. Therefore, if possible, investigations of the coping process should implement prospective designs.

In summary, research has demonstrated that coping strategies interact with subjective appraisals of coping efficacy to predict mental health. These findings have implications for the examination of the coping efforts of athletes in sport. Perhaps, coping strategies interact with self-evaluations of coping efficacy in predicting athletic performance. It seems reasonable to assume that more satisfied competitors would be more likely to perform better than competitors who feel stressed and are unsatisfied with their coping efforts. In this respect, the usefulness of an athlete's interpretation of coping efficacy should not be overlooked. These perceptions are important indicants for adjustment and provide the researcher with another potential target for intervention (Zautra & Wrabetz, 1991).

Time at Which Coping Strategies are Evaluated

In trying to determine a coping strategy's efficacy, other researchers have focused on its short- or long-term effects. Short-term effects refer to any psychological or physiological dependent variables measured concurrently or immediately after exposure to the stressor, whereas long-term effects involve any longer intervals. It has been suggested that certain strategies may be more differentially effective depending on how soon after the stressful event adaptation is assessed. In accordance with these proposals, the short- and long-term consequences of approach and avoidance coping strategies have

been examined (see Roth & Cohen, 1986).

Wolff, Friedman, Hofer, and Mason (1964) investigated the reactions of parents whose children were dying of leukemia. They reported that parents who used denial exhibited lower levels of corticosteroid secretion during the child's illness than parents who did not use denial. In contrast, nine months later, parents who had high secretion levels before the child's death, now had lower secretion levels. A similar pattern has been found in the descriptions of recovery from traumatic events such as spinal cord injury or the death of a loved one. A period of denial or minimisation occurs immediately after the event, to be gradually replaced by problem-focused coping efforts as the patient undertakes a treatment program (e.g., Moos, 1977). The implications of these results is that rejecting the crisis has short-term benefits, but attention, or approach-related strategies, are more beneficial in the long run.

Mullen and Suls (1982) conducted a meta-analysis of 26 studies to clarify the importance of time when evaluating the efficiency of coping strategies. They found a consistent pattern showing that rejection (avoidance) strategies were found to be effective when outcome measures examined immediate or short-term coping efforts, whereas attention (approach) strategies were found to be more effective when the outcome measures examined coping efforts used in the later stages of the stress experience (long-term). However, the researchers admitted that a limitation of their meta-analysis was that none of the studies reviewed had measured short- and long-term effects with the same subjects. Consequently, a second meta-analysis was performed (Suls & Fletcher, 1985). Results similar to the first meta-analysis were obtained. Although avoidance was associated with more positive adaptation in the short-term, attention, in time, was associated with more positive outcomes.

In response to the numerous studies utilising the approach and avoidance framework of coping strategies, Roth and Cohen (1986) conducted a review of the related literature and described the potential costs and benefits of each of these coping orientations (see Table 1). For example, in the short-term, avoidance strategies helped to reduce stress and anxiety by providing the individual with the necessary time to assimilate

stressful information and mobilise coping efforts to alter the stressful environment. In the long run, however, an individual who persisted with avoidant strategies would neglect to confront and resolve the source of stress and, thus, might experience emotional numbness and disruptive internal feelings and thoughts. Further, if the individual failed to associate his or her feelings of distress with the threatening encounter, the opportunities for effective treatment and a full recovery would be reduced.

In regard to approach, Roth and Cohen (1986) maintained that long-term benefits included appropriate coping actions being taken, effective precautions being implemented, the expression of negative affect, and the successful resolution of the stressful incident. In the short-term, confronting the stressor could lead to increased distress. This effect would be amplified in situations which could not be changed. Several studies have attempted to verify these proposals.

Krohne and Hindel (1988), for example, investigated athletes' coping activities during competition. It was found that top table-tennis players who employed cognitive avoidant strategies to cope with critical situations occurring in the course of the match won more games in the important tie-break situation and were less anxious than players who did not use such strategies. Krohne and Hindel explained that the table-tennis players could not afford to indulge in self-centered interfering cognitions during the game for fear of being distracted from subsequent passages of play. Likewise, Anshel (1990c) stated that athletes "cannot afford to become distracted nor demotivated if an umpire or referee makes a 'wrong' call in situations in which sport activity is ongoing" (p. 6). Thus, it may be better to employ avoidance coping strategies in acute stressful situations so that one can focus on the task at hand. Other studies, however, have provided evidence contrary to Roth and Cohen's (1986) proposals.

Larsson and his colleagues (1988) reported that police officers used considerably more problem-focused forms of coping than emotion-focused forms of coping when handling acute, work-related stressful situations. The researchers attributed their findings to the occupational requirements of police work. It was the duty of police officers to remain at the scene, concentrate on the task at hand, avoid distractions, and resolve

Table 1

Potential Costs and Benefits of Approach and Avoidance

Reaction	Benefits	Costs
Approach	Appropriate action Ventilation of affect Assimilation and resolution of trauma	Increased distress Non-productive worry
Avoidance	Stress reduction Allows for dosing Increased hope and courage	Interference with appropriate action Emotional numbness Intrusions of threatening material Disruptive avoidance behaviors Lack of awareness of relationship of symptoms to trauma

Note. From "Approach, avoidance, and coping with stress" by Roth and Cohen, 1986, American Psychologist, 41 (7), p. 817.

situations. In another study, Kaissidis (1993) observed that basketball players preferred to use more approach coping and less avoidance coping strategies across a variety of acute game stress situations. Madden et al. (1990) also recorded similar findings with basketball players. They believed that their results accurately reflected sport psychology

literature which advocated that approach-oriented forms of coping such as increased effort, resolve, and a commitment to mastering skills were important ingredients of success in sport. Therefore, these studies suggested that in certain acute contexts approach coping strategies might have been more effective in achieving various outcomes.

Conflicting findings were also reported by Carver and Scheier (1993) in two separate studies they conducted with 51 men undergoing first-time nonemergency coronary bypass surgery (CABS) and 65 breast cancer patients. In both studies subjects were interviewed a day prior to surgery, approximately one week after surgery, and several months afterwards. Measures of negative mood or distress, and coping strategies used to deal with the upcoming surgery and following period were collected at these interviews. Indices of physical well-being (evaluations of the patient's pace of recovery, morale levels, the patient's prognosis for resuming a normal life) were also obtained from the CABS subjects. Vigilant responses were indicated by subjects thinking about their physical symptoms, their negative emotions, and the period surrounding the operation and their stay in hospital. Trying not to think about these things reflected avoidance responses. Results showed that both vigilance and avoidance forms of coping were positively associated with distress.

Specifically, among the CABS patients, thinking about the recovery period was associated with reduced concurrent distress as well as an increased rate of recovery six months later. In contrast, among the cancer patients, vigilance was linked to concurrent distress and distress measured three months later. Concerning avoidance responses, among CABS patients, trying not to think about symptoms and emotions around the surgery period was related to a slowness to resume activities, doubt about the usefulness of the surgery, and poor quality of life. However, avoidance thoughts about the recovery period were associated with faster progress. Among the cancer patients, positive associations were also found between self-reported measures of avoidance and concurrent distress. In general, these results indicated that both vigilance and avoidance were associated with distress emotions. Carver and Scheier suggested that any

differences in results between the two groups was due to postsurgical experiences unique to each group. While the recovery period for cancer patients was often threatening as they underwent periods of radiation and chemotherapy, CABS patients usually experienced a more uneventful recovery. Thus, the authors concluded that contextual conditions must be considered when examining the utility of different coping responses.

Future research is obviously needed to clarify the inconsistencies in the literature with respect to the relative efficacy of avoidant versus approach strategies, and in particular, with respect to immediate coping responses. Of course, steps in this direction should consider characteristics of the stressful situation to be able to provide any definitive conclusions.

Controllability of the Situation

According to Forsythe and Compas (1987), an important assumption of a transactional model of stress is that "a specific strategy or mode of coping cannot be defined as effective or ineffective independent of the context in which it is used" (p. 473). Based on this view, coping effectiveness is dependent on the interaction of coping efforts with cognitive appraisals of stressful events. Previous research investigating the relationship of coping strategies with an individual's subjective appraisals has shown that coping strategies appear to differ for events appraised as controllable versus uncontrollable (e.g., Folkman & Lazarus, 1980; Parkes, 1984; Stone & Neale, 1984). Accordingly, this perspective of coping effectiveness assumes that events appraised as controllable are best suited to the use of problem-focused coping, while events appraised as uncontrollable are best matched with emotion-focused coping.

Several studies have examined adaptational status as a function of the event-appraisal-coping fit. Collins, Baum and Singer (1983) investigated how residents of Three Mile Island dealt with the nuclear accident. Residents who engaged in problem-focused coping in response to chronic, uncontrollable conditions associated with the accident reported having more psychological symptoms than did people who used less problem-focused coping. Those who used emotion-focused coping, on the other hand,

reported fewer symptoms. These findings supported the hypothesis that distress varies as a function of the match between cognitive appraisal and coping. Felton and Revenson (1984), however, failed to find evidence for this hypothesis. They examined how individuals coped with four illnesses (hypertension, diabetes mellitus, rheumatoid arthritis, and cancer) that offered varying degrees of control. Felton and Revenson found that positive affect, negative affect, and acceptance of one's illness did not vary as a function of the interaction of the controllability of the illness and coping strategies. Commenting on these unexpected results, the researchers felt that the lack of an interaction between coping and controllability may have been due to the limited range of perceived control possible in the illnesses studied. Also, only two types of coping (wish-fulfilling fantasy and information seeking) were assessed, thus further constraining the further possibility of establishing an interaction between coping and control.

Forsythe and Compas (1987) attempted to address these limitations by investigating whether psychological distress varies as a function of the goodness of fit between cognitive appraisal and coping with a variety of common life stressors (major life events and daily hassles). In relation to major life events, symptomatology was high when there was a poor fit between appraisals and coping (e.g., trying to change a stressor that was appraised as uncontrollable) and low when there was a good fit between appraisals and coping (e.g., palliating one's emotions when a stressor was perceived as uncontrollable). They noted that the absence of similar findings in conjunction with the subjects' most distressing daily events may have been due to the different magnitude of these events. Mismatching one's cognitive appraisal and coping on a single daily hassle would probably be much less severe than a poor fit between these factors on a major life event.

Therefore, mixed findings have been found concerning the adaptiveness of certain coping strategies when used with particular appraisals. Further, studies have not indicated why some individuals continue to use coping strategies that are inappropriate for the context or the appraisals made. In this respect, Forsythe and Compas (1987) suggested that individuals may be selecting coping strategies that are compatible with

their personal disposition rather than their situational control beliefs. In instances when appraisals are in conflict with one's preferred way of coping, or coping style, those preferences may override situational appraisals in relationship to coping. The compatibility between an individual's coping style and the demands of the situation will be addressed next.

Person-Situation Matching

In support of the interactional theory of stress and coping (Lazarus & Folkman, 1984), it has been proposed that individuals fare better when aspects of the situation are well-matched with an individual's coping style. Evidence supporting the value of person-by-situation matching has been found in the disciplines of medicine (e.g., Auerbach, Martelli, & Mercuri, 1983; Martelli et al., 1987; Miller & Mangan, 1983) and clinical psychology (e.g., Cohen & Roth, 1984; Cook, 1985). These studies have come as a result of considerable interest in the application of stress management techniques for the preparation of patients needing to undergo various treatments. The provision of information as a distinct intervention is the most commonly researched preparatory strategy. Mills and Krantz (1979), for example, examined first time blood donors who were given information that would allow them to prepare for blood drawing, or control in the form of choice of arm they preferred to have blood drawn from. Subjects who were offered both information and choice of arm to use were more distressed than those who were allowed just one form of control. The researchers suggested that when the individual prefers not to have control, increased choice or participation may heighten stress. In a study by Shipley et al. (1979), subjects were given information that allowed them to exercise self-control in response to an intrusive procedure (endoscopy). Repressors were found to be more anxious than sensitizers when given this information, presumably because having control was antagonistic to a preferred style. Other studies support the importance of the interaction between provision of information and the person's disposition.

In a study by Auerbach et al. (1983), a group of dental patients were presented with either specific information (procedural and sensory elements) or general information just prior to undergoing tooth extraction. There was a significant interaction between level of information and patient preference for information indicating that patients in the high-information condition who had a high preference for information showed better behavioural adjustment than high-information preference patients in the low-information condition. The inverse pattern was observed for patients with a low preference for information. Thus, patients whose treatment opposed their preferred style showed more distress than those who were treated according to their coping style. In another study, Miller and Mangan (1983) examined the interaction of style of information seeking and amount of information provided in tolerating a stressful gynecological procedure. Patients were divided into information seekers (monitors) and information avoiders (blunters) based on their score on Miller's Behavioral Style Scale. Half of the patients in each group were then provided with detailed preparatory information, while the other half were given only a low level of information. Results showed that levels of physiologic, subjective and behavioural arousal were lowest when the level of information was consistent with patients' information seeking style. That is, monitors were less distressed when given a high level of information, and blunters were less distressed by low information. Results such as these have prompted researchers to recommend the prescription of stress interventions that match one's preferred coping style (e.g., Auerbach, 1989; Miller, 1987). These studies have also suggested that individuals who are high monitors and/or low blunters generally experience more pychological and physical symptoms in response to common stressful life events that are uncontrollable and unpredictable, than do individuals who are low monitors and/or high blunters. Consequently, Miller (1990) proposed a model that takes into account situational controllability and coping styles (see Table 2).

Miller (1990) suggested that when an aversive event was largely uncontrollable, high monitoring and low blunting had little value as they only succeeded in increasing

Table 2

Adaptiveness of Coping Styles in Controllable and Uncontrollable Situations

	Low monitoring/ high blunting	High monitoring/ low blunting
Uncontrollable situations	Reduces anxiety and frustration	Increases anxiety and frustration
Controllable situations	Interferes with execution of instrumental actions	Allows for execution of instrumental actions

Note. From "To see or not to see: Cognitive informational styles in the coping process" by Miller, 1990, in M. Rosenbaum (Ed.), Learned resourcefulness: On coping skills, self-regulation, and adaptive behavior (p. 119), New York: Springer Press.

anxiety and frustration. On these occasions, low monitoring and high blunting were preferable coping modes because they allowed the individual to effectively reduce stress by engaging in distraction and similar psychological techniques. Conversely, when the threat was controllable (such as reducing one's risk for cancer by giving up cigarettes), high monitoring and low blunting of information provided the individual with the necessary resources to regulate his or her behaviour. People choosing to ignore information by distracting themselves from the hazards of smoking would continue to place their health at risk.

In addition to the monitoring-blunting paradigm, other coping modes have been utilised in intervention studies matching treatments with subjects' coping styles. Cohen and Roth (1984) reported that abortion patients who used approach strategies showed a

decrease in reported anxiety over a time period from five hours presurgery to immediately postsurgery, whereas patients who did not use approach strategies did not decrease significantly in reported anxiety. These findings were interpreted in the context of the counselling that subjects were exposed to at the clinic during the five hour presurgery period; counselling strongly geared towards approach. Cohen and Roth suggested that the approachers' decrease in anxiety may have been due to a consistency between their preferred style and the counselling methods of the clinic. Similarly, Martelli et al. (1987) presented patients about to undergo preprosthetic oral surgery with either a problem-focused, emotion-focused, or mixed-focused stress management intervention. Better satisfaction and lower self-reported pain were obtained when high information-preference subjects were given a problem-focused intervention and when low information-preference subjects were given an emotion-focused intervention. However, the best overall response to surgery was reported by subjects who were provided with a mixed-focus intervention that combined coping strategies directed at both objective characteristics and emotional aspects of the surgical situation. This finding suggested that in certain situations it might be more beneficial for the individual to adopt coping strategies opposed to his or her coping style.

To investigate this possibility Fleischer and Baron (1988; cited in Miller, 1989) examined dental patients during restoration procedures, considered to be an uncontrollable yet familiar situation. Patients who were categorised as monitors and who were taught to engage in cognitive-avoidance techniques by listening to relaxing music as a means of distraction showed significant reductions both in self- and observer-rated distress. These findings led Miller to propose that "effective regulation may involve the ability to discriminate variations in situational factors and to adjust one's coping strategies accordingly" (Miller, 1990, p. 118). According to this proposal, in situations characterised by little control the focus of stress interventions should be on the modification of the individual's coping preferences based on the existing situational demands. An opposing point of view is tended by Krohne (1988). He argues that "a psychological intervention should aim at supporting a patient's individual style of coping

and, if possible, at matching situational circumstances with this style" (p. 20). It would seem that both Miller's and Krohne's approaches, although conflicting, would have their place in an intervention program.

Consider first a basketball player who has been penalised by the referee for a foul that he or she did not think was deserved. In this situation the player has no control over the official's decision and so, irrespective of the player's coping style, the most effective course of action should probably involve an avoidance strategy which would allow the player to remain focused on the game. Next, consider a player who has missed a shot into the basket. Here, the availability of control ensures that the player can reflect on the physical error so that it does not happen again. But if the player chooses to ignore the error it may keep occurring throughout the game causing his or her performance to suffer. Therefore, for controllable stressors, it may be best to administer coping strategies that are commensurate with an athlete's coping style. On the other hand, for uncontrollable stressors, individuals may benefit by adjusting their coping style to the demands of the situation.

In summary, coping effectiveness is a function of a number of factors. These include the flexibility of individuals in their choice of coping strategies, the demands of the situation, and the fit of the person's characteristic style to the individual situation. With these factors in mind the researcher must then take account of the indices of measuring coping efficacy and the period of time over which the testing process is to occur. An important question for future research is to explore the extent to which the execution of coping styles can be shaped to fit with situational constraints or whether psychological interventions should be presented that are consistent with both the athlete's coping style and the particular situational contingencies. Basketball provides an ideal medium for investigating this area as over the course of a competition season players are repeatedly exposed to a limited range of acute stress situations. For predictable stressors interventions can teach players, first, to discriminate the relevant situational factors, such as controllability, and then to execute the appropriate strategy.

Coping in Sport

The ubiquitous nature of stress in all levels of organised athletic competition has been well documented (e.g., Kroll, 1980; Scanlan, 1984). Research has been conducted on stress-related topics including athletic burn-out (Cohn, 1990), anxiety-performance relationships (Burton, 1988), athletic injury (Andersen & Williams, 1988), sources of stress (Kaissidis & Anshel, 1993), and stress management interventions (Anshel, 1990b). Surprisingly, there is a paucity of research investigating the appraisal and coping processes involved in sport-related stress.

Madden et al. (1989) administered the Ways of Coping with Sport (WOCS), an eight-factor process checklist adapted from Folkman and Lazarus' (1985) Ways of Coping Checklist (WCC), to a population of middle distance runners attending a training camp for elite athletes. Madden et al. found that seeking social support, increased effort and resolve, and problem-focused coping strategies were used consistently as strategies for coping with a slump in personal performance in competitive running. Similar strategies were used by highly stressed competitive basketball players in another study employing the WOCS (Madden et al., 1990). In a more recent study, Crocker (1992) asked athletes from 14 different sports to answer another version of the WCC in response to a stressful athletic situation that had occurred in the preceding three weeks. Results showed that the strategies could be clustered into eight separate factors (active-coping, problem-focused, seeking social support, positive reappraisal, self-control, wishful thinking, detachment, self-blame) and that a wide range of cognitive and behavioural strategies were used to manage stress. Results were also consistent with the proposal that if perceived stress was low, then the need to employ coping strategies ought to be low.

While the aforementioned studies have made valuable contributions towards the assessment of athletes' coping strategies, they share common methodological limitations. The first limitation of these studies concerns the technique used to develop the coping scales. Scales need to be developed that are theoretically and functionally distinct, as

opposed to the current reliance on exploratory factor analysis procedures to define scales (Crocker, 1992). The majority of the coping items contained within previous scales have been derived from non-sport inventories and, thus, are inappropriate to describe coping activities in athletic contexts. Some researchers have attempted to address these shortcomings (Gould, Eklund, & Jackson, 1993a; Gould, Finch, & Jackson, 1993b).

Gould et al. (1993a) conducted extensive in-depth interviews with the members of the 1988 U.S. Olympic Wrestling Team regarding how they coped with stress encountered during the Olympics in Seoul. Employing inductive analysis techniques the reported coping strategies were organised into four general dimensions including: (a) thought control strategies (blocking distractions, perspective taking, positive thinking, coping thoughts, and prayer), (b) task focus strategies (narrow, more immediate focus, concentrating on goals), (c) behavioural based strategies (changing or controlling the environment, following a set routine), and (d) emotional control strategies (arousal control, visualisation). They also obtained information about how often strategies were employed. Specifically, thought control strategies were reported in 80% of the transcripts, while task focus strategies, emotional control strategies, and behavioural based strategies were each reported by 40% of the wrestlers. This study, however, failed to make associations between the type of stressors experienced and the particular coping strategies used. Gould et al. (1993b) addressed this issue in a follow-up study.

Using the same interview and content analyses methods as in the previous study, Gould et al. (1993b) interviewed Senior U.S. National Champion figure skaters. The skaters were asked to describe how they coped with each of seven different stressors during their sporting careers. General coping dimensions reported by at least 40% of the skaters included: (a) rational thinking and self-talk, (b) positive focus and orientation, (c) social support, (d) time management and prioritisation, (e) precompetitive mental preparation and anxiety management, (f) training hard and smart, (g) isolation and deflection, and (h) ignoring the stressor. Different types of coping strategies were implemented depending on the stressor faced. For example, when dealing with physical or psychological demands, over half of the skaters used rational thinking and self-talk,

changing to healthy eating attitudes and behaviours, and precompetitive mental preparation and anxiety management. On the other hand, when the skaters experienced environmental demands, time management or prioritisation the most frequently used coping strategies were isolation and deflection. Thus, this study clearly demonstrated that sport coping research should adopt a sport-specific perspective by developing coping strategies relevant to the athlete group being examined.

Comparing the findings of the studies by Gould and his colleagues (1993a, 1993b) reveals that a number of new coping dimensions emerged in their second study. Gould et al. (1993b) attributed these differences to the broader context (practice as well as competition) and time frame (over several years versus one Olympic games) used in the skating study as compared to the wrestling investigation. In a similar way, it is highly likely that an athlete will use different coping strategies after performing a physical error during a game (acute stressor) as compared to dealing with a past romantic relationship with a girlfriend (chronic stressor). The first situation requires an immediate response, the second an ongoing response which can be deferred until another time. Therefore, research in stress should also consider the time frame governing one's coping responses. As yet, no coping inventories have distinguished chronic stress from acute stress in sport.

Some researchers have investigated the issue of coping consistency in sport. Bouffard and Crocker (1992) longitudinally examined coping in response to physical activity challenges faced by individuals with physical disabilities. It was found that subjects did not consistently use the same coping strategies at all times across all of the challenging situations encountered. These results suggested that coping was explained by a person-by-situation interaction instead of a more rigid coping style or situationally-determined response, although the researchers assessed coping using Carver et al.'s (1989) COPE, a non-sport inventory. As noted earlier, the provision of irrelevant coping items in this coping inventory renders sport or physical activity findings questionable.

In another study exploring cross-situational consistency in sport, Kaissidis (1993) assessed the coping efforts of basketball referees and players across three and four game-

related acute stress situations, respectively. He obtained conflicting results with only the referees employing statistically similar degrees of approach and avoidance coping responses across situations. A unique feature of this study was the measurement of selected personal dispositions (optimism, self-esteem, monitoring-blunting) and various situational appraisals (perceived stress, perceived controllability). In accordance with predictions, personal dispositions and situational appraisals significantly contributed to predicting coping responses for both the referees and the players, thus demonstrating the value of both sets of factors in the process of coping. Kaissidis' study, however, had limitations. First, like many of his predecessors Kaissidis borrowed his coping items from a non-sport general coping inventory, Cohen and Roth's (1985) Approach-Avoidance Scale. Second, subjects were asked to consider how they would cope in hypothetical situations as opposed to how they coped in a stressful situation they actually experienced. Gould et al. (1993b) believed this approach was problematic because respondents might predict the use of certain coping strategies in a hypothetical situation that may not be available in the actual situation. Conversely, strategies that would actually be used may not be anticipated. Therefore, to obtain a more accurate account of the coping process, individuals must be asked how they coped with situations that actually occurred. However, if these reports of coping were found to correspond with hypothetical (dispositional) accounts, then an individual's coping style could be measured in advance resulting in more effective intervention programs (Carver & Scheier, 1994).

One study that attempted to examine which strategies are most effective in decreasing stress and facilitating performance was by Krohne and Hindel (1988). They analysed the relations between general and sport-specific trait anxiety, coping dispositions, coping responses, and success with top table-tennis players. Results indicated that successful players were characterised by low cognitive anxiety, an increased use of cognitively avoidant sport-specific coping strategies, and by little vigilant coping. Consequently, the researchers recommended that coping strategy interventions should be designed according to the characteristics and demands of the aversive encounter.

Many of the methodological limitations that have plagued past coping research in sport may be addressed by conducting a systematic series of studies in the one sport. Sport-specific sources of stress would need to be identified, coping strategies relevant to these same stressors described and categorised according to a theoretical framework, the contribution of prominent person and situational factors in predicting coping responses measured, and a stress management program designed that recognises all of these factors. Basketball is one sport that would be able to providde the large number of athletes needed for such an investigation.

In summary, sport-specific coping inventories that measure coping efforts in response to acute sources of stress need to be developed. Rather than just assess how players think they would have coped, these inventories should also measure players' actual coping responses. These issues will be pursued further in the following section. Also, research has shown that both personal and situational factors need to be taken into account when examining the coping process in sports. Understanding the role of various factors in coping can help researchers identify potential target points for intervention (such as appraisals and coping strategies) and develop more effective stress management progams. Finally, the accessibility of players makes basketball a suitable sport for these investigations.

The Measurement of Coping

Methodological issues evident in existing coping scales that need to be addressed include the non-systematic conceptualisation of coping, the value of episodic measures as opposed to coping style measures, the underdeveloped psychometric properties of some scales, the inapplicability of coping items to certain stressful events, neglecting to specify particular time periods for coping reports, and the failure to distinguish between chronic and acute stress.

Over the last decade a number of researchers have attempted to identify basic dimensions of coping responses (e.g., Billings & Moos, 1981; Carver et al., 1989;

Folkman & Lazarus, 1980; Pearlin & Schooler, 1978; Roth & Cohen, 1986). For example, Billings and Moos proposed a typology consisting of active-behavioural strategies, active-cognitive strategies, and avoidance strategies. Folkman and Lazarus, on the other hand, differentiated between problem-focused strategies and emotion-focused strategies, and Roth and Cohen classified coping strategies into approach and avoidance categories. Although many of these studies have revealed factors that resemble approach and avoidance dimensions, few attempts have been made to examine how these higher-order factors relate to the constructs of problem- and emotion-focused coping. Tobin and his colleagues (1989) contended that if more was understood about how these higher-order categories were related, confusion about the higher-order structure of coping would be reduced. In the meantime, the non-systematic conceptualisation of coping strategies limits the generalisability of many research findings.

When developing their coping measures, researchers have assessed coping as a trait, a style, or as an episodic indicator (Cohen, 1987). While episodic coping has measured the strategies individuals actually use in a particular coping episode, the style approach investigates the tendencies of an individual to respond in a particular way when confronted with a specific set of circumstances. Thus, in the context of this thesis, styles differ from traits, the latter implying the presence of underlying personality traits that predispose the person to respond in a particular way irrespective of the situational circumstances. Of relevance here is a discussion of episodic measures of coping versus coping style measures.

The widespread acceptance of the transactional theory of stress and coping has reinforced the use of episodic, process measures of coping. Again, transactional theory views coping as certain cognitions and behaviours that are performed in response to specific stressful situations. Coping is regarded as a dynamic process, which changes over time in response to objective demands and subjective appraisals of a situation. One of these episodic coping questionnaires, the WOCS, has played a prominant role in advancing coping research. The format of the WOCS is similar to that adopted by other episodic questionnaires (e.g., Billings & Moos, 1981; Pearlin & Schooler, 1978).

Subjects typically describe a recent stressful event, appraise it, and then answer a series of questions about the way in which they handled the event. Although of important theoretical interest, researchers have criticised the psychometric properties of the WOCS (e.g., Carver et al., 1989; Endler & Parker, 1990). Endler and Parker, in particular, have found empirical support for the validity of the scale to be weak and the internal consistency reliabilities very modest. Adding to these methodological problems, researchers who have used the WOCS have frequently added or dropped items according to the hypotheses under investigation (Felton & Revenson, 1984; McCrae, 1984; McCrae & Costa, 1986; Parkes, 1986; Scheier et al., 1986).

Stone, Greenberg, Kennedy-Moore, and Newman (1991) have raised a number of other issues concerning the development of episodic assessments of coping, such as the WOCS, including the applicability of coping items to different kinds of stressful events, and the definition of the period for which subjects report coping efforts. Specifically, they found that some of the WOCS items, and even groups of items, were both too general and not applicable to certain kinds of stressful situations. When devising their scale, Lazarus and Folkman (1984) intentionally used general coping items to enable the assessment of coping in any stressful encounter. However, one disadvantage of this approach is that in eliminating content-specific strategies, some of the most efficacious strategies for handling a particular type of problem may also be eliminated. As regards the second issue, Stone and his colleagues noted that, with the notable exception of Folkman and Lazarus's (1985) study concerning coping during three stages of a college examination, no particular time period is specified for coping reports when subjects complete the WOCS. Therefore, relative as well as absolute amounts of reported coping may differ depending on the way in which an individual defines the coping period. Comparing coping reports across individuals would become very difficult if not impossible as a result. On this issue, Bolger (1990) added another pertinent point. When subjects were asked to recall an event that occurred months beforehand, an accurate account of their coping activities with the stressful event in question was immediately open to criticism. Rather than recalling the specific coping strategies they

used to deal with that stressful event, subjects may have reported how they typically coped with stress. Bolger claimed that as time elapsed people became more biased toward dispositional accounts of their own behaviour.

Commenting on the value of episodic measures such as the WOCS, Krohne (1988) believed "the idea that concrete events can best be predicted from other (more or less immediately preceding) events rather trivial" (p. 11). He asserted that event-to-event predictions could contribute little to the solution of problems such as developing intervention programs for the prevention of stress problems. Thus, efficient prevention requires information about the people before they enter a stressful situation which can readily be ascertained through coping style measures.

Recent coping style scales, while still attempting to identify differences in dispositional coping preferences, take into consideration the interacting influence of situational variables such as controllability and predictability (e.g., Cohen & Roth, 1986; Krohne, 1989; Miller, 1987). The relevance of these situational characteristics in determining an individual's choice of coping responses was emphasised in the previous section. Two coping style scales that are commonly used are Miller's (1987) Behavioural Style Scale and Krohne's (1989) Mainz Coping Inventory. The format of these instruments approximates that of the episodic scales with two exceptions.

First, instead of describing a stressful event subjects are often provided with descriptions of various situations potentially capable of eliciting anxiety. By providing subjects with standard stressful scenarios the following potential limitations are addressed: (a) problems created by general or inapplicable items are reduced, (b) a time frame for subjects to report coping efforts is specified, and (c) subjects' coping responses can be compared across stressful situations. The second way that coping style measures differ to episodic ones concerns the frame of reference that is used when responding. When assessing a dispositional coping style, the coping items are framed in terms of what the person *usually* does when under stress as opposed to what he or she *actually* did. One problem that both Miller's and Krohne's coping scales share, however, is that subjects may be responding to situations that either they do not consider stressful or that

are not realistic. If this is the case then researchers may not be obtaining a true representation of a subject's coping style. This problem assumes special importance given that the focus of the present studies is to examine the coping efforts displayed by competitive basketball players immediately upon experiencing acute stressful episodes. As Krohne (1988) confessed, "The major problem with research on coping in the area of athletic competition is the specificity of stress-relevant factors in the different sports" (p. 22). Thus, coping style scales in sport need to include stressful situations experienced during competition.

Surprisingly, coping inventories in sport have failed to differentiate between chronic and acute stress. Obviously, this has important implications for coping activities. For example, the Ways of Coping with Sport Checklist created by Madden et al. (1990) utilised coping strategies such as "Ask someone I respect for advice" and "Try to make myself feel better by eating, drinking, or smoking prior to games" that assumed ample time to cope. When responding to acute stress in a sporting setting the athlete has to act immediately as the game is ongoing. One study that attempted to broach this area was by Kaissidis (1993) who measured the coping responses of basketball players when presented with four acute stressful scenarios; stressors taken from another study (Madden et al., 1990). After 179 players reported their coping efforts a principal components factor analysis revealed that the strategies fell under two distinct factors, labelled approach and avoidance, although one factor contained only two items. Another limitation was that the coping items had been borrowed directly from another scale (Roth & Cohen, 1986) and, therefore, may have been inappropriate to respondents. This scale may have exhibited stronger construct validity if the coping responses had been generated by the basketball players participating in the study.

Another problem with current coping instruments concerns the manner in which they have been developed. Their development has been guided primarily by empirical considerations which has resulted in a proliferation of coping measures. For example, multiple proposed factor structures have been obtained in separate studies using the WOCS (e.g., Aldwin, Folkman, Schaefer, Coyne, & Lazarus, 1980; Crocker, 1992;

Folkman & Lazarus, 1980, 1985). Krohne (1993) viewed such classification methods as relatively arbitrary, often having little connection to the theoretical model the author had advanced for his or her empirical work. If factor analysis was to be conducted, he argued that: (a) it be carried out on the basis of theoretical assumptions, and (b) the results of such a classification be related again to those same theoretical assumptions. In fact, one coping style questionnaire with excellent psychometric properties that exemplifies both theoretical and empirical bases has recently been developed by Carver and his colleagues (1989). The researchers initially derived various coping items which they assigned a priori to scales. Factor analysis with a large sample of undergraduates then yielded factors containing the previously designated items. In the same way, inventories should be constructed according to both theoretical deductions and empirical calculations.

Finally, much controversy has surrounded the efficacy of utilising subjective reports as the primary source of data about coping processes. Researchers have long been aware of the disadvantages inherent in this style of assessment. These include: inaccurate memory recall, language ambiguity, and social desirability problems. Remaining cognisant of Bolger's (1990) caveat that retrospective accounts of coping became less accurate over time, researchers need to assess the nature of the individual's coping efforts as soon as possible after the stressful event has occurred. This action should minimise the problem of retrospective falsification. Larsson et al. (1988) accomplished this by having police officers reconstruct the most stressful job-related incident they had experienced during the previous ten days. In sport, this problem could be reduced by interviewing athletes immediately after the game about their coping efforts in response to stressful incidents experienced during the game.

The present thesis attempted to address some of these limitations in measuring coping responses. The scales developed for and used in this thesis were generated with respect to specific acute stress situations occurring during basketball competition, thus controlling for inapplicable items. Players' coping responses, which were based on the approach-avoidance formulation, were assessed immediately after games had concluded.

This ensured that players' coping efforts were confined to a designated time frame, and that retrospective falsification was minimised.

Stress Management Training

In recent years there has been expanding interest in the area of stress management training in medical settings (e.g., Ludwick-Rosenthal & Neufeld, 1988), in general psychology (e.g., Smith, 1980), and in sport (e.g., Burton, 1990). In contrast to more traditional ways of viewing stress as a stressor stimulus acting on an individual, current training programs conceptualise stress as an interactional process between a person and his or her environment. As described earlier, an interactional approach highlights the role of cognitive appraisal and coping actions as critical features in determining stress (e.g., Lazarus & Launier, 1978). In conjunction with this approach, a number of cognitive-behavioural interventions have been designed to help people reduce or manage stress by altering the way they appraise environmental stimuli, and by implementing more effective coping responses (e.g., Meichenbaum, 1985; Smith, 1980).

Stress Management Training in General Psychology

Two intervention programs that are based upon the interactional approach to stress, and which are commonly used in the general psychology field, are Meichenbaum's (1985) stress inoculation training and Smith's (1980) cognitive-affective stress management training.

Stress Inoculation Training

Stress inoculation training (SIT) is based on a transactional view of stress in that "stress occurs whenever the perceived demands of a situation tax or exceed the perceived resources of the system (individual, group, community) to meet those demands, especially when the system's well-being is perceived as being at stake" (Meichenbaum,

1993, p. 382). Accordingly, the roles of cognitive-appraisal and coping are emphasised. To facilitate adaptive appraisals and provide individuals with effective coping skills, Meichenbaum proposed three treatment phases: (a) education, (b) coping skill acquisition and rehearsal, and (c) skill application. During the educational phase, clients are presented with a rationale for the treatment program. This includes a discussion of their thoughts, feelings, and behaviours during stressful experiences. As a result of this phase, clients become aware of their maladaptive reactions which are to be modified. The second phase involves teaching clients various cognitive and somatic coping skills including progressive muscle relaxation, problem-solving skills, and cognitive restructuring. The main coping skill taught, however, is self-instructional training where the client acquires specific lists of positive, coping, self-statements.

These statements serve four functions. Specifically, these statements: (1) act as cues to direct attention to certain parts of the environment, (2) encourage the client to appraise the reality of the threat, (3) direct behaviour in a stressful situation, and (4) function as self-reinforcers for having coped successfully with the stressor. The final phase of SIT involves the application of coping skills to some stressor, either real or simulated. Covert or imaginal rehearsal of coping skills is used by clients to deal with gradually increasing intensities of stress.

Meichenbaum (1993) reviewed over 200 published and unpublished studies that had applied some aspect of SIT to a wide range of populations and stress-related problems. He noted that, among others, SIT has been used with public-speaking anxious people, individuals afraid of flying, brain-injured patients with anger control problems, alcoholics, rape victims, chronic pain patients, AIDS patients, disaster workers, patients preparing for cardiac catheterization, and military parachutists. Although Meichenbaum did not discuss how effective each of these studies had been in alleviating the target problem, he did emphasise that an evaluation of an SIT intervention must be sensitive to the problem-focused or emotion-focused demands of the stressor.

Burton (1990) acknowledged this distinction in his review of published studies in the general psychology literature. To gain an idea of the program's effectiveness, Burton

randomly selected 24 SIT outcome studies which he separated into 12 problem-focused treatments and 12 emotion-focused treatments. The former treatments focused on alleviating stress so that individuals could do something to remove the stressor and improve their performance, whereas the latter attempted to reduce stress in order to help the person feel better, irrespective of whether anything could be done to alter the stressor itself. Of the 12 problem-focused SIT treatments, Burton established that 10 reported that SIT reduced stress and/or anxiety significantly more than did a no-treatment control group. Concerning performance improvements, four of nine studies demonstrated significantly greater performance gains for the SIT compared to control groups. Of the 12 SIT treatments that were emotion-focused in nature, nine included a control group. Of these, seven reported that the SIT group was significantly less stressed than were control subjects. None of the emotion-focused treatments was concerned with performance measures. Burton concluded that SIT appears to be an effective program for reducing stress and anxiety but less effective for enhancing performance.

Cognitive-Affective Stress Management Training

Smith's (1980) cognitive-affective stress management training (SMT) is an intervention program that is conceptually similar to SIT in that it is based on an appraisal/coping model which emphasises that emotions and behaviours are determined not by the situation but by the individual's interpretation of that situation. Illustrated in Figure 1, this model describes relationships between cognitions, physiological responses, and behaviours. According to SMT, physiological responses (i.e., arousal), primary appraisals (i.e., perceived personal threat), secondary appraisals (i.e., perceptions of one's ability to cope effectively with the threat), and reappraisals (i.e., new appraisals resulting from consequences of initial coping actions) combine to produce cognitive interpretations. Consequently, a key component of SMT is modifying cognitive mediational responses. Cognitive restructuring and self-instructional training are the principle intervention strategies employed to achieve these modifications. Cognitive restructuring is derived from Ellis' (1981) rational-emotive therapy. It attempts

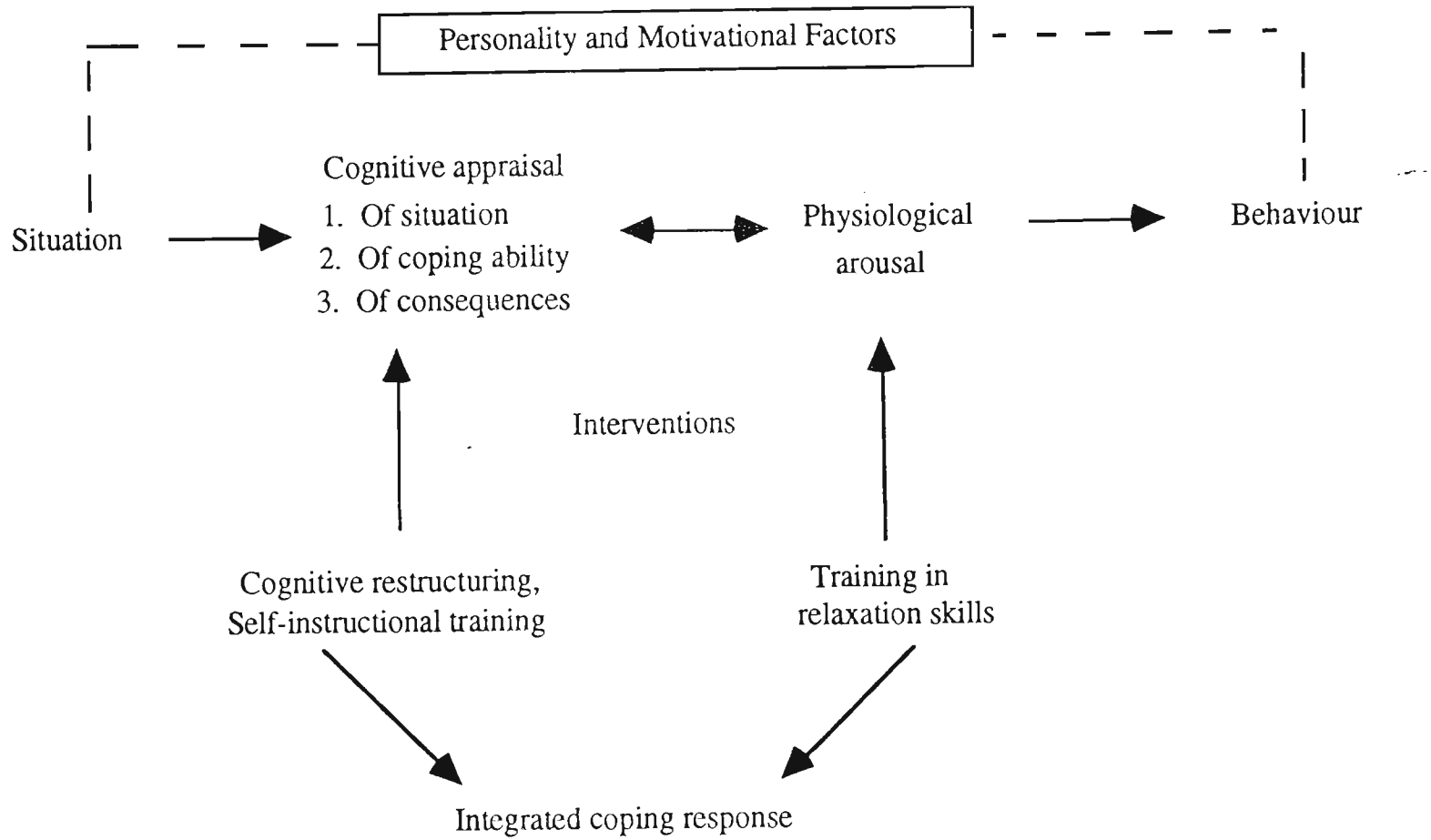

Figure 1. Mediational Model of Stress Underlying the Cognitive-Affective Stress Management Program Together With the Major Intervention Techniques Used in the Development of the Integrated Coping Response. From "Induced affect in stress management training" by R.S. Smith & J.C. Ascough, 1985, in S.R. Burchfield (Ed.), Stress: Psychological and physiological interactions (p. 360), Washington, DC.

to identify and change the specific irrational self-statements that a person makes in a stressful situation. Similar to SIT, this strategy is taught to clients during the second stage of a progam consisting of three overlapping stages: conceptualisation, skill acquisition and rehearsal, and skill application.

During the skills acquisition stage of training, physical relaxation techniques are also taught. Coping skills taught during this stage are practised and rehearsed under conditions which resemble the 'real-life' situations in which they will eventually be employed. Initially, clients practise coping using physical relaxation alone and then through self-instructional responses alone. Finally, clients are shown how to combinetheir somatic relaxation and cognitive coping responses into an 'integrated coping response' in a one-breath sequence. The integrated coping response consists of an appropriate stress-reducing self-statement during inhalation, the transitional phrase "so" at the peak of inhalation, followed by repetition of the physical relaxation cue word "relax" while exhaling. When rehearsing these skills individually and as the complete response, an induced affect technique is used to generate high levels of affective arousal in response to imagined stressful scenes (Sipprelle, 1967). After vividly imagining a stressful situation, clients are asked to turn their attention inward and focus on the feelings that the event elicits. Repeated suggestions are given that the feelings are increasing in intensity,and verbal reinforcement of somatic indications is used to develop a strong affective response (Smith & Ascough, 1985). Once clients become highly aroused, they are instructed to use their integrated coping response to reduce their emotional arousal.

In contrast to SIT, empirical evidence testing the efficacy of SMT is limited. In one study, Holtzworth-Munroe, Munroe, and Smith (1985) examined the effects of SMT on stress experienced by first- and second-year medical students. After assigning students to either SMT or control groups, self-report measures of stress, general anxiety, test anxiety, self-esteem, and depression were assessed pre- and posttreatment and at a 10-week follow-up. Results indicated no significant group differences at posttreatment, but by follow-up SMT students reported less test anxiety than control subjects. Additionally,

SMT students observed greater amounts of tension and a greater ability to cope with anxiety than did control subjects. The researchers suggested that treatment effects continued to increase over time. Other positive results were reported by Smith and Nye (1989). They compared the effectiveness of induced affect rehearsal and covert rehearsal (i.e., imagined stress) techniques for practising coping skills with test anxious college students. Both treatment conditions exhibited significant reductions in test anxiety, although the induced affect group revealed a larger test anxiety decrease than did the covert rehearsal group. On the other hand, the covert rehearsal group produced stronger generalisation of treatment effects to general trait anxiety. The researchers also investigated the generalised effects of training on self-efficacy and locus of control global expectancies. For both measures, generalisation effects were found for the covert rehearsal group and the induced affect group. Finally, both conditions also recorded greater improvement in academic test performance when compared with a control condition. Together, the results from these studies suggest that SMT is an effective stress management program, and that the induced affect technique may be superior to the covert rehearsal technique (used in SIT) for practising coping skills.

In summary, cognitive-behavioural stress management programs such as SIT and SMT seem to be effective in decreasing emotional arousal and improving performance in general psychology research. Perhaps, these programs would be applicable to competitive sport which is characterised by high levels of psychological stress. It has been shown that increased levels of stress cause many athletes to have maladaptive thoughts and images (Jones & Hardy, 1990). These negative cognitions, in addition to the physiological effects of stress, hinder performance. To combat the deleterious effects of stress, many sport scientists have strongly advocated the implementation of psychological techniques and programs to enable athletes to maintain and improve their sporting performance and satisfaction levels (e.g., Andersen & Williams, 1988; Crocker & Gordon, 1986). The following section will review stress management intervention research conducted with athletes.

Stress Management Training in Sport

Intervention programs for stress management in sports have basically followed one of two approaches, namely, an eclectic approach where an assortment of behavioural and cognitive strategies have been presented to the athlete (e.g., Kendall, Hrycaiko, Martin, & Kendall, 1990; Maynard & Cotton, 1993) or a more systematic approach where athletes have been exposed to various somatic and cognitive intervention strategies that are ground in formal programs (e.g., Anshel, 1990b; Kerr & Leith, 1993). Both approaches have been found to be useful to athletes. Numerous studies have employed the eclectic approach and demonstrated the efficacy of combining several psychological skills into mental training programs. Among others, imagery combined with relaxation has been shown to be more effective than imagery alone (e.g., Suinn, 1977; Weinberg, Seaborne, & Jackson, 1981), relaxation and self-talk have shown positive effects when combined with other mental skills (e.g., Hamilton & Fremouw, 1985; Kendall et al., 1990), and improvements in performance and pre-game anxiety resulted from a program involving imagery, centering, focusing, and energising (Savoy, 1993).

While the success of many of these programs can be attributed to the care taken to organise and implement the various strategies around the individual characteristics and personal performance requirements of the athlete, a theoretical framework based on the stress and coping process which is inherent in the more formal stress management programs is absent. For this reason, discussion of intervention programs for athletes will be restricted to those packages that are predicated upon the transactional model of stress. Specifically, sport studies that have employed SIT or SMT will be reviewed. In addition, studies are discussed that have incorporated cognitive appraisal and coping into acute stress programs.

Stress Inoculation Training

Several empirical investigations have employed SIT in sporting contexts. Some of these studies have examined the effects of SIT on psychological and physiological

variables, while other studies have looked at performance changes. Mace and Carroll (1985) assessed the impact of SIT for controlling anxiety experienced by subjects making their first abseil descent. Forty subjects were randomly assigned to one of four conditions: SIT and practical training, self-instruction training alone, practical training alone, and a no-training control group. The results revealed that the SIT plus practical training group had significantly lower stress and anxiety levels than the other groups. Mace, Carroll, and Eastman (1986) conducted a similar study with 20 volunteer subjects who they assigned to either a no-training control group or a SIT group. Results essentially replicated those found in the earlier study with the stress inoculation group showing significantly less self-reported stress and less state anxiety than the control group.

Mace and his colleagues (Mace & Carroll, 1986; Mace, Eastman, & Carroll, 1986) examined the effects of SIT on anxiety in two other investigations. Mace et al. provided eight SIT sessions to a female gymnast who generated negative self-statements whenever she was about to attempt difficult moves. After an intervention program of relaxation, visualisation, and self-statement training, a qualitative analysis of the gymnast's comments indicated that she had been successful in developing a set of positive self-statements and images. The second study (Mace & Carroll, 1986) concerned the effects of SIT on squash players. Three players who reported experiencing performance disrupting levels of anxiety formed the experimental group. Three other matched subjects provided the control group. Eight training sessions were given to the SIT group. Although complete data existed for only two matched pairs, the experimental subjects reported significantly lower anxiety levels than the control subjects.

The findings of all of the studies reviewed thus far suggest that SIT may be an effective stress management package for reducing self-reported anxiety. Other researchers have addressed the question of possible performance effects. Hamilton and Fremouw (1985), for example, used a multiple baseline design to evaluate the effectiveness of a SIT program on the cognitions and free throw performance of three male collegiate basketball players. Following ten hours of intervention, free throw

performances increased from between 50% and 80% for all of the players. Similarly, self-statements changed from 86% negative prior to training to 71% positive following training. Methodologically, the small sample size and lack of control subjects limit the findings. Recently, Kerr and Leith (1993) investigated the effects of SIT on performance, mental rehearsal, attentional skills, and competitive anxiety. The subjects included 24 international gymnasts who were matched into pairs and placed in either an experimental or control group. After 16 treatment sessions held over an eight month period, the experimental group demonstrated superior performance, mental rehearsal, and attentional skills. However, competitive anxiety levels were significantly higher for the experimental group which the researchers attributed to an increase in facilitative rather than debilitative anxiety. Furthermore, although a matched control group was used, it was not an attention-placebo control group.

Cognitive-Affective Stress Management Training

SMT has received only preliminary examination in sport. One study that did employ SMT was conducted by Ziegler, Klinzing, and Williamson (1982) with eight cross-country runners. They compared the efficacy of SIT and SMT on heart rates and oxygen consumption levels. Results showed that subjects who received either of the treatment programs used significantly less oxygen during a 20-minute submaximal treadmill run than a no-treatment control group. While this study suggested that either stress management program might be beneficial in attenuating a physiological indicator of performance, the small sample size and absence of an attention-placebo control group are problematic.

Most recently, Crocker et al. (1988) investigated the effect of SMT on affect, cognition, and performance of elite junior volleyball players. Subjects were assigned to either an experimental group or a waiting-list control group. The treatment group received an SMT program over an eight-week period. The treatment group reported fewer negative thoughts in response to videotaped stressors and had superior service reception performance in a controlled practice situation than did the control group.

However, the two groups did not demonstrate any significant differences on trait or state competitive anxiety. Crocker et al. interpreted the lack of an anxiety-reducing effect in terms of a cognitive view of emotion which maintains that affect and cognition are dependent. The researchers postulated that in certain stressful competition situations affect and cognition may be interrelated but independent systems.

In summary, although many of the studies reviewed have reported some positive psychological and performance changes with athletes who have received SIT and SMT interventions, methodological criticisms limit the findings. In particular, small samples and a lack of motivational control groups has surrounded many of these programs. Further, there is a conspicuous absence of research examining the effects of stress management programs on acute stress as opposed to chronic stress.

Additional Studies Incorporating a Transactional Approach

A number of other studies have adopted a transactional approach when examining the effects of stress management intervention strategies in sport. What makes this category of investigations unique is the generation of cognitive-behavioural programs for managing acute stress. For instance, Meyers and Schleser (1980) worked with a male elite basketball player who had concentration and anxiety problems (e.g., hesitating before shooting, and avoiding shooting oportunities), apparently due to the presence of irrelevant thoughts that interfered with his shooting. A SIT program was prescribed that consisted of progressive relaxation to eliminate attentional distractions, imagery to improve concentration, and thought stopping and coping self-instructions to promote attending to task demands. The athlete's subsequent free throw shooting and field goal shooting improved, but in company with several acknowledged limitations that included a failure to conduct manipulation checks on the subject's correct use of the strategies, differences in opponents, the athlete's improvement over the season irrespective of any cognitive techniques employed, and an absence of control of emotional and motivational factors. Also, no attempt was made to equip the athlete with a series of cognitive strategies that could be implemented in response to acute stressors during the actual

competition situation. Rather, relaxation and imagery techniques were practised prior to and between games, and during breaks in the game action.

Anshel (1990b) specifically designed a program, named the COPE model, to address the athlete's responses to acute stress. The model explains the processes of coping with acute stress, provides a sequence of cognitive and behavioural strategies that reflect these processes, and provides insight into the ability of athletes to overcome highly acute stress during competition by maintaining the proper mental set. COPE achieves these through four cognitive and behavioural processes. During the first component the athlete is required to do two things. First, the athlete attempts to regulate emotions to enable the maintenance of more productive cognitions, and second, the athlete prepares to deal with the acute stressor by taking responsibility for his or her own performance. The objective of the second component consists of judgements being made about the value of the information directed at the competitor. During the third stage of the COPE model the athlete plans subsequent responses while avoiding self-reflection. The objective of the evaluation phase of the model is to eliminate any unpleasant thoughts that might interfere with cognitive processes by performing the sport skill as soon as possible.

A series of studies have been conducted to test the efficacy of this model. In one study (Anshel, Gregory, & Kaczmarek, 1990), male baseball and female softball players were trained to use cognitive strategies to cope with negative criticism as opposed to placebo (watching sport-related videotapes) and no-treatment control groups. Results indicated that athletes exposed to the COPE program decreased their fear of appearing incompetent, were less afraid of negative evaluations, enhanced their self-esteem, and promoted internal causal attributions of their performance. Anshel et al. acknowledged the following limitations of this study: (1) the absence of a sports performance measure in response to acute stress, (2) the extent of the investigator's credibility as opposed to having the players' actual coach offer critical feedback, and (3) the lack of any immediate undesirable consequences derived from the feedback. These issues were addressed in a second study.

Involving a college women's tennis team, Anshel (1990b) asked the head coach to offer critical feedback after observing each player hit five consecutive forehand and backhand drives in response to a ball tossing machine. Irrelevant information (e.g., the coach's feelings of disappointment) was communicated along with instructional feedback that was relevant for future success. Performance accuracy and mood were assessed. All members of the team were then administered intervention strategies, according to the COPE model, that enabled them to ignore or discount the coach's feelings while attending to the instruction. Pre- and post-intervention comparisons suggested that experience with the COPE model facilitated performance accuracy while reducing negative affect of the players. This study, however, was not without its weaknesses. Consistent with previous stress management studies a motivational-control group and manipulation checks were not included. Considering the pervasive nature of these limitations in the stress management area, further space will be devoted to them in the next section.

Finally, Johnston and McCabe (1993) examined the relationship between approach and avoidance coping strategies, the nature of the task, the appraisal of perceived demand and perceived capability, and performance. Ninety undergraduate students were randomly assigned to one of six groups: approach task, approach strategy; approach task, avoidance strategy; approach task, relaxation (control); avoidance task, avoidance strategy; avoidance task, approach strategy; and avoidance task, relaxation (control). The approach task involved putting ten golf balls along an S shaped path into a target hole, whereas the avoidance task involved putting ten golf balls into an easy target while music and noise was played to distract subjects from the task. Subjects were trained in either approach (mental rehearsal) or avoidance (attentional focus) strategies. Results revealed that subjects in the approach condition who were taught the approach strategy perceived their capability to be significantly better than the group taught the avoidance strategy and the control group. In the avoidance condition, all groups improved their rating of perceived capability over the intervention period. An examination of the group means indicated more positive findings. In the approach condition, the group who were taught the approach strategy improved their score, reported a decrease in perceived demand,

enhanced their perceived capability, and exhibited less stress compared to the group taught the avoidance strategy and the control group. In the avoidance condition, the group taught the avoidance strategy improved their score and reported enhanced capability compared to the group taught the approach strategy and the control group. These results suggest that the training and use of an appropriate coping strategy can lower stress and improve the performance of people in a sporting situation. Of course, Johnston and McCabe admit that this type of research has to be extended to a field setting where athletes would be more intensely involved in the task and would, thus, experience a greater degree of stress.

Collectively, the investigations reviewed demonstrate the efficacy of stress management intervention programs on the performance and cognitions of athletes. These studies also support the view that cognitions mediate anxiety and that these cognitions are themselves amenable to modification. If the athletes' cognitions can be altered, the associated anxiety should be reduced. However, this view should be accepted with caution as various methodological and design weaknesses were apparent in many of the studies examined. These limitations will be discussed in the following section.

Needs for Future Stress Management Programs in Sport

Recently, a number of training programs incorporating the transactional model of stress have become available to help athletes reduce or eliminate stress problems they may be experiencing in their chosen sport. Three stress management programs that have been modified or developed for use in the sport setting are Meichenbaum's (1985) SIT, Smith's (1980) SMT, and Anshel's (1990a) COPE model. Although the studies that were reviewed in the previous section provided support for each of these approaches in aiding the athlete in the management of stress, future research is needed to address several problem areas. These include the need to: (a) distinguish between acute and chronic stress, (b) provide a structured routine with which to implement recommended coping strategies, (c) develop intervention programs according to both the individual and

the specific characteristics of the demands of the particular sport, (d) clarify the relationships between variables involved in the stress and coping process, and (e) address several methodological limitations.

The first limitation of many of the studies examined concerns their failure to regulate acute, as opposed to chronic, stress. Proponents of SIT (Meichenbaum, 1985) and SMT (Smith, 1980) advocated providing athletes with a multitute of coping skills such as muscle relaxation, cognitive restructuring, and adaptive self-statements, that athletes could master and apply as needed to deal with stressful situations. Crocker et al. (1988), for example, presented volleyball players with eight separate skills for coping with the stress of service reception. Similarly, Kerr and Leith (1993) taught eight coping techniques to gymnasts which were to be implemented during performances. The premise of this approach has typically been that the more strategies learnt by the athlete, the greater his or her chances of being able to successfully manage any stressful encounter. However, Anshel (1994) contended that in many sport situations emphasising continuous open skills (e.g., making an error during a gymnastics routine, and missing a basket during a basketball game), there was insufficient time to implement numerous strategies. Further, Carver and Scheier (1981) and Kirschenbaum (1984) proposed that in situations which required rapid physical responses to stressful situations, athletes needed to minimise self-reflection, internal focusing, and covert rehearsal. Thus, assisting athletes in mastering a smorgasbord of coping skills appears to be inappropriate for time-limited situations. To help the athlete respond to unpleasant stimuli with parsimony and speed researchers have recommended that stress management techniques be taught as a structured routine (Anshel, 1990b; Suinn, 1987; Vealey, 1988).

As noted, there is a tendency for studies administering stress management programs to provide the athletes with a seemingly large range of coping strategies. However, the organisation of these strategies into a coherent, structured routine has been the exception rather than the rule. Orlick (1986) was among the first to investigate this area. He emphasised the development of mental competition plans in which athletes systematically used imagery, self-talk, and attentional techniques to focus appropriately

during precompetition and competition. This gave the athlete a systematic structure upon which to utilise various performance-enhancing strategies. Likewise, Boutcher and Rotella (1987) suggested that a systematic routinised pattern of actions and thoughts would aid athletic performance. This combination of cognitive and behavioural strategies was incorporated into a performance routine. A number of studies have validated the effects of performance routines in open and closed skill sports (e.g., Boutcher & Crews, 1987; Crews & Boutcher, 1986).

Boutcher and Crews (1987) offered several explanations to account for the effectiveness of performance routines in sport. Two of these reasons may be applicable to the utilisation of coping routines when dealing with sources of acute stress. First, they argued that routines may have enabled athletes to concentrate more efficiently by forcing them to focus their attention on task-relevant information instead of task-irrelevant cues. Sources of distraction such as self-awareness, physiological arousal, and self-debilitating thoughts would also be offset by the use of routines. Second, routines may have prevented athletes from thinking about the mechanics of well-learned skills that were better performed automatically. In acute stress situations, many of these difficulties would probably be compounded if an athlete was struggling with several coping strategies simultaneously. Future research, then, is needed to generate specific coping routines that can be rapidly implemented when responding to aversive incidents during competition that are ongoing.

Another area that demands further attention in sport research is the individualisation of treatment interventions. Not only should the intervention be tailored to meet the unique requirements of the athlete, but it should also be specific to certain situations in a particular sport (Bull, 1991; Jones, 1993; Vealey, 1988). Jones used performance profiling methods when describing a stress management package to help a female racket sport player manage pressure situations on court. When the subject's progress was evaluated at three and six months following the intervention, it was found that self-efficacy, cognitive anxiety, and the ability to concentrate and relax had all dramatically improved. A major strength of the program, according to Jones, was the athlete's high

motivation to implement and adhere to the treatment. This resulted from the athlete being involved in decisions concerning the generation of the program. Bull expressed a similar view when he investigated personal and situational variables that influence adherence to a mental training program. Interviews with the athletes participating in the study indicated the need for individualisation of training programs.

Anshel (1990b) also advocated the development of stress management programs following a person- and situation-specific approach. His particular interest lay in the application of an approach-avoidance dichotomy of coping strategies to acute stress transactions encountered in sport. He proposed that the selective use of coping strategies may be a function of the situation (e.g., making a physical error), the situational appraisal (e.g., perceptions of threat), personal dispositions (e.g., generalised control beliefs), and individual coping preferences (e.g., coping style). Johnston and McCabe (1993) tested the effectiveness of an approach-avoidance dichotomy as a function of the situation in a simulated golfing task. An approach strategy was found to be more effective than an avoidance strategy when dealing with an approach-oriented task (characterised by controllabilty). Some evidence was also found for the efficacy of using an avoidance strategy with an avoidance-oriented task. These findings demonstrated the importance of an athlete utilising a coping strategy which is appropriate to the situation experienced.

Research has yet to investigate the efficacy of prescribing treatment programs that are commensurate with an athlete's coping style. Certainly, in the medical and clinical psychology literature, studies have suggested that a person's preference for certain coping strategies in particular situations represents an important precondition for effective coping (e.g., Auerbach, 1989; Ludwick-Rosenthal & Neufeld, 1988; Martelli et al., 1987). Knowledge of an athlete's coping style would allow the development of corresponding coping strategies with which he or she is most comfortable. Of course, an examination of effective coping strategies must "proceed in the context of knowledge of critical characteristics of stressful events" (Roth & Cohen, 1986, p. 818).

Although all of the studies reviewed in the previous section conducted stress management programs that were based upon the transactional model of stress, only three

studies have assessed the psychological processes which mediate stress. In his study with tennis players, Anshel (1990b) reported that subjects who received cognitive-behavioural strategies commensurate with the COPE model demonstrated improved performance and reduced negative affect. However, perceptions of controllability were not included in the study. In another study, Anshel et al. (1990) reported that baseball and softball players who were exposed to COPE realised improvements in terms of a variety of cognitions, but no measure of performance was obtained. As discussed earlier, Johnston and McCabe (1993) found some evidence to support the theory that coping enhances the athletes' perceptions of their capability to successfully meet the demand of a stressful encounter. A limitation of this investigation was its use of a laboratory setting. Thus, the relationship between affect, appraisals, and performance in a field setting remains unclear. Do cognitions alter affect? And is an athlete's performance influenced by his or her response capability perceptions? These are some of the questions that need to be examined if more effective stress management programs are to be developed for athletes dealing with acute stress.

Future research also needs to address several methodological limitations that have been evident in past stress management studies. In their review of 19 published studies covering 23 psychological interventions, Greenspan and Feltz (1989) observed that very few studies had included a motivational-control group and an adequate manipulation check. Motivational-control groups are necessary to ensure that the results of intervention studies are due to the programs implemented. Many of the studies reviewed earlier (e.g., Kerr & Leith, 1993; Mace & Carroll, 1985; Zeigler et al., 1982) used no-contact or waiting-list control groups which are insufficient to control for Hawthorne effects; the athlete's mere attendance at treatment sessions may have induced the observed changes.

Manipulation checks are necessary to ensure that athletes feel comfortable with their coping skills and do in fact utilise them in competition. They also provide a window to help researchers understand which components of the treatment affected change in the outcome measures (Greenspan & Feltz, 1989). Finally, the use of stress management

techniques in field or contest-like situations has often been neglected by researchers. Lazarus and Folkman (1984) argued for the superiority of naturalistic stress research compared to laboratory studies. Real-life stressful situations may be less controllable than artificial stressful tasks, but they ensure that the subject will exhibit real affective states. Limitations such as these may partially explain the dearth of conclusive results supporting the effectiveness of stress management programs in sport.

Summary

Research has documented the debilitating effects that the competitive sport environment can have on an athlete's physiological and psychological health and performance. Recently, the effects of acute stress have been acknowledged as contributing to this process. Among others, acute stress experienced during competition can lead to interrupted cognitions, reduced attentional abilities, and an increased likelihood of sustaining injuries. Consequently, research is needed to identify those coping strategies that are most effective in alleviating the effects of acute stress.

As different encounters require different coping strategies, the first step towards establishing efficacious coping actions involves the identification of particular acute stressors that are perceived by athletes as most stressful. To date, little research has investigated this area. Also, while cognitive appraisals, personal dispositions, and situational characteristics are considered important determinants of an individual's coping efforts, research findings examining relationships between these factors have often been inconsistent. This is largely due to an absence of sport- and situation-specific measures of coping being used in stress and coping investigations. The use of inappropriate coping items together with the difficulties inherent in obtaining accurate recollections of coping efforts need to be addressed by asking athletes immediately following contests how they managed particular aversive situations.

In general, stress management interventions in sport recognise the transactional model of stress which views stress as an interaction between the person and his or her

environment. However, few studies have examined the psychological processes which mediate stress. Thus, it is unclear whether the learnt coping skills have been successful in altering the athlete's cognitive appraisals and feelings of stress. Also, remaining cognisant of the multiple skills presented to participants in past stress intervention programs, strategies should be couched within a structured coping routine which can be employed rapidly with no interruption to subsequent performance. Finally, individualised stress management programs are needed that take account of the demands of the situation and the disposition of the individual. In particular, sport researchers have yet to explore the utility of offering coping skills training programs that are compatible with an athlete's coping style.

CHAPTER THREE

STUDY ONE

SOURCES OF AND RESPONSES TO ACUTE STRESS OF COMPETITIVE BASKETBALL PLAYERS

Part A: Sources of Acute Stress

The purpose of Part A of this study was to identify the sources of acute stress experienced by competitive basketball players during a game. These sources of acute stress were then used to examine the efficacy of coping style in competitive basketball.

Method

Subjects

Two groups of subjects volunteered to participate in the first part of this study. All subjects participated in the Championship grade of the Illawarra Basketball League in New South Wales, Australia. The first group of subjects, comprised of 20 players, ages 16 to 42 yrs (*Md* = 24 yrs), were interviewed to determine sources of acute stress experienced by players during competition. The second pool of subjects consisted of 69 players, ranging in age from 16 to 44 yrs (*Md* = 24 yrs). These subjects were asked to rate the intensity of the acute stressors identified by the first group. None of the teams to which the subjects in this study belonged had the services of a coach.

Procedures

Interviews were used to ascertain the sources of acute stress experienced by the players during competition. All interviews were conducted at a basketball stadium prior to the game, as this was the most convenient meeting place for the players.

Interview Process and Questions

The first part of the interview was used to establish rapport with the subject and to indicate the interview's purpose and focus. The participant was then informed that his answers would remain confidential. Because of the expected brevity of the participant's responses, all information gathered from the interview was recorded by the researcher. After obtaining the player's age and current competition level in basketball, the researcher read the following operational definition of acute stress to him:

> When we discuss acute stress, we are referring to the negative emotions, feelings and thoughts that you may have experienced immediately following exposure to an incident while on the basketball court during a game. These would include feelings of apprehension, anxiety, muscle tension, nervousness, physical reactions (such as butterflies in the stomach, shaking, or nervous sweating), thoughts centered on worry and self-doubt, and negative statements to yourself (adapted from Scanlan et al, 1991).

Adopting a guided interview approach (Cohn, 1990), the researcher asked the participant the following open-ended question, "When you are on court during a basketball game what specific incidents cause you to feel acute stress? Try and recall incidents that are time-limited, that is, incidents which occurred in an instant as opposed to those that are ongoing." If a response seemed ambiguous or the stressor described appeared related more to chronic rather than acute stress, elaboration probes were used to help clarify or expand answers (Patton, 1990). Example probes included, "Specifically, what aspect of the incident made it a source of stress for you?," "Are you sure that it was that particular aspect of the incident that caused you to feel acute stress?," and "Can you identify the particular moment when you experienced acute stress?" These probes helped the researcher pinpoint the cause of each stressful experience. Before concluding the interview, the participants were given one final opportunity to describe any additional

sources of acute stress, "Are there any other situations that caused you acute stress?"

Materials

Sources of Acute Stress in Basketball Questionnaire (SASB)

Using the sources of acute stress collected from these interviews the second group of players were asked to "circle the degree of stressfulness you experience immediately following each situation described" on a 5-point Likert scale ranging from 1 (not at all stressful) to 5 (very stressful). This self-report inventory, the SASB, was designed to determine the magnitude of the basketball players' stress responses for these sources of acute stress. It will be elaborated upon in the following section.

Results

Inductive Content Analysis of Sources of Acute Stress

Two researchers, well-versed in qualitative evaluation methods and the current stress literature, analysed the subjects' responses from the interviews using a three-step procedure. First, following the procedure outlined by Scanlan et al. (1991), the researchers clearly defined the basic unit of analysis. This consisted of sources of acute stress derived from the transcriptions. As noted, the sources had to involve specific time-limited incidents. For example, responses such as "I'm having a lousy game" and "The referee is biased" were considered ongoing or too general and, therefore, were excluded from further analysis because they failed to capture specific moments occurring during a game. Also, when two or more items were found to convey the same theme only one was retained (e.g., "I miss an easy shot" and "I miss a basket which I should have got"). This exercise was conducted independently by the researchers. When finished with their analyses, they presented their findings to the other researcher. Discussion ensued until the researchers reached a consensus on a final list of responses. This list consisted of 57

responses.

Second, inductive content-analysis procedures were used to analyse these responses (Gould et al., 1993b; Scanlan et al., 1991). This approach allows the responses to be grouped into interpretable and meaningful categories. Each response is compared and contrasted with all the other responses thereby allowing those with similar meanings to be united while those with different meanings are separated. In analysing the data each response had to satisfy three criteria. First, the unit of analysis consisted of the subjects' responses. Second, each response was related to only one source of acute stress. Third, situational circumstances surrounding a response (e.g., missing an easy shot *late in the game*, and having a shot blocked *when the scores are tied*) were omitted from sources of acute stress so as to simplify the categorisation process. Subsequently, the researchers reduced the 57 responses to 25 unique sources of acute stress. Then, working independently, each researcher identified emergent common categories from the list of stressors. These categories represented the greatest levels of generality. The sources of acute stress belonging to these categories all appeared to possess underlying uniformities, that is, all of the stressors within a particular category possessed similar characteristics or properties. For example, the stressors "I miss an easy jump shot" and "I decide to force a play and it goes wrong" were both perceived as belonging to the same category. The inductive process was not taken beyond this step because no higher level dimensions appeared possible. Both researchers were satisfied that the five identified categories accurately reflected the different types of sources of acute stress experienced by these basketball players.

After each of the stressors were clustered into one of the five categories the researchers compared their findings and jointly labelled and defined each category. A protocol was established in the event of disagreement. When a dispute arose over the labelling of a category or the placement of a stressor within a category, the researchers referred back to the unit of analysis and the idea conveyed by each raw data response. Finally, interrater reliability was conducted to remove potential analyst bias when clustering stressors. Consistency between the two analysts was .92.

Sources Of Stress

Table 3 presents the sources of acute stress identified by the inductive content analysis. The stressors are displayed in descending order from the five highest categories to the raw data responses on the left. These categories were labelled "Interpersonal Conflicts," "Refereeing Decisions," "Personal Performance Problems," "Opposition Influences," and "Team Behaviours." As can be seen, in most cases the total percentage of players reporting responses for individual stressors within each category exceeds the percentage of players who represented that category. This was because many players reported more than one source of acute stress within a particular category. For example, for the category, "Refereeing Decisions," the number of subjects identifying responses belonging to the three stressors (25) exceeds the number of subjects who cited stressors contained within this category (20).

Interpersonal Conflicts. The category of interpersonal conflicts was considered to reflect abuse of either a physical or psychological nature. This category was interpreted from six sources of acute stress and cited by 20 of the players interviewed (100%). The responses within these stressors represented 32% (or 18) of all the stressful episodes reported. Incidents of physical abuse included being hit with a cheap shot, being injured by an opponent, receiving an offensive foul, and being hit by a frustrated opponent. Psychological abuse involved being criticised by a teammate, and having an opposition player verbally abuse another player. The source of acute stress to which players most frequently referred within this category was "An Opponent Physically Abuses Me" (80%). This generally involved attempting to foul a player who was in the act of performing a lay-up or who was contesting a rebound. "Receiving an Intentional Foul" was the second most frequent stressor within this category (60%). What differentiates the two most frequent stressors is the surreptitious nature implied by a cheap shot. For example, a player may commit a foul without being detected by the referee, whereas when executing an intentional foul no such caution is practised. In contrast, to these two examples of physical abuse, only four players (20%) described incidents of verbal abuse

Table 3

Inductive Content Analysis Including Percentage of Players Citing Each Source of Acute Sress and Each Category

%	n	Raw Data Responses	Sources Of Acute Stress	Categories (%)
80	16	Deliberate foul when going for lay-up Receiving a knee into the chest on a rebound Receiving an elbow on a rebound Being hit with a cheap shot when both players are off the ball Being hit with a cheap shot which the referee spots Being hit with a cheap shot which the referee fails to spot	An opponent physically abuses me	
15	3	Suffering pain or injury at the hands of an opponent	I suffer pain or injury on court at the hands of an opponent	
5	1	An opponent hits me in frustration for his own mistake	An opponent hits me in frustration for his own mistake	
60	12	Receiving an intentional foul which the referee spots Receiving an intentional foul which the referee fails to spot Having shirt held behind play Being pushed out of the key Deliberately fouled late in the game	An opponent commits an intentional foul on me	Interpersonal Conflicts (100)
20	4	A teammate telling you what you did wrong Being criticised by a teammate when it is unjustified Being criticised by a teammate towards the end of the game	A teammate criticises me for a mistake I made	
20	4	Opposition bench heckles me throughout the game A player verbally threatens me when I am beating him	An opposition player verbally abuses me	

(Table 3: Continued)

%	n	Raw Data Responses	Sources Of Acute Stress	Categories (%)
10	2	Referee reverses a decision after prompting by a player	The referee reverses a decision after prompting by an opposing player	
100	20	Receiving terrible calls from the referee Receiving a bad call when we are losing Receiving an unjustified technical foul Receiving an unjustified charge foul	The referee makes what I thought was a bad call on me	Refereeing Decisions (100)
15	3	Referee makes a bad call on a teammate	The referee makes a bad call on one of my teammates	
100	20	Missing easy shots Missing lay-ups Missing easy shots when the game is close	I miss an easy basket	
80	16	Making a mistake that gives the opposition the ball Making a travelling error Ball coming off my foot and going to opposition Throwing a poor pass which goes to the opposition Good pass to me and I drop it	I am responsible for a turnover	
20	4	Deciding to force a play which goes wrong	I decide to force a play and it goes wrong	Personal Performance Problems (100)
15	3	An ankle injury prevents me turning quickly An injury prevents me catching a pass	An injury prevents me from performing a move	
35	7	Receiving a fourth foul early into the game Receiving a fourth foul when the scores are close Receiving a fourth foul when we have no substitutes	I receive a fourth foul	
15	3	Missing a 3-pointer when scores are close Missing an outside shot when team is just losing	I miss an outside shot	

(Table 3: Continued)

%	n	Raw Data Responses	Sources Of Acute Stress	Categories (%)
50	10	The ball is stolen from me Being robbed of the ball towards the end of the game Ball being slapped away before you can shoot	I lose possession of the ball to an opponent	
40	8	Pass being intercepted	My pass is intercepted	
30	6	My player beats me and scores	The player I am marking beats and scores	Opposition Influences (55)
40	8	Shot being blocked before end of game Shot prevented from going into basket	My shot is blocked	
20	4	Opponent playing man to man on me	An opponent keeps me out of the play by playing man to man on me	
15	3	Not being passed the ball when I am below the ring Missing easy points because teammate not passing	A teammate misses the basket when I am in a better position to score	
10	2	Bench fails to warn me that I have four fouls and I collect a fifth	My bench fails to warn me that I have collected four fouls and I receive a fifth	
15	3	Teammate not marking his man and opposition scores Player not sticking to set play and opposition scores	A teammate fails to stick to a set play allowing the opposition to score	Team Behaviours (25)
25	5	Teammate shooting when team not ready Not being under the ring for the rebound Not being in an offensive set for the rebound	A teammate misses the basket and our team is not ready in an offensive set for the rebound	
5	1	Teammate verbally abuses the referee	A teammate verbally abuses the referee	

as being stressful.

Refereeing Decisions. This category was defined as decisions made by the referees with which players disagreed and/or found inconsistent. The category of refereeing decisions was interpreted from three stressors present in the interviews. Responses for this category constituted 11% (or 6) of all stressors recorded. The most frequently cited stressor within this category was "The Referee Makes What I Thought Was a Bad Call on Me." All 20 of the basketball players interviewed (100%) cited this as a source of acute stress.

Personal Performance Problems. This category focused on errors or aspects of play attributable to the athlete which were not directly induced by opposition influences, for example, unforced errors. This category was interpreted from six sources of acute stress present in all of the interviews (100%). Twenty-eight percent of the responses reported during interviews were related to stressors within this category. Four of these stressors were related to technical misjudgements in play. These included "I Miss an Easy Basket," "I am Responsible For a Turnover," "I Decide to Force a Play and it Goes Wrong," and "I Miss an Outside Shot." "I Miss an Easy Basket" was the most frequently cited source of stress in this category being mentioned by all subjects (100%).

Opposition Influences. This category was defined as those moments when the basketball player's efforts were directly affected by intervention from the opposition. Thus, these may be described as forced errors. This category was comprised of five sources of acute stress and was cited by 11 (55%) of the basketball players. These five stressors accounted for 14% of the responses reported. Three of the stressors involved the player being unable to complete a passage of play. These included "I Lose Possession of the Ball to an Opponent," "My Pass is Intercepted," and "My Shot is Blocked." Fifty percent of the players (or 10) offered comments perceived as belonging to the first of these stressors. The remaining two stressors in this category portray

success by the opposition in preventing the player from gaining possession of the ball. Both these stressors were reported less frequently than the other three stressors representing opposition influences.

Team Behaviours. This category was defined as experiencing mental distress because of the behaviours of a teammate. Five of the basketball players (25%) made reference to sources of stress belonging to this category which accounted for 15% of all the responses reported. This category was comprised of five stressors, three of which involved tactical errors by a player's teammate. The most frequently reported stressor within this category, cited by 25% of the players, consisted of "A Teammate Misses the Basket and Our Team is Not Ready in an Offensive Set for the Rebound."

Perceived Stress Intensity

The 25 unique sources of acute stress identified by the inductive content analysis were randomly listed within the SASB (see Appendix A). Then, a second group of basketball players ($N = 69$) was asked to rate each of these sources of acute stress on a 5-point Likert scale ranging from "not at all stressful" (1) to "very stressful" (5). The average magnitude of the players' stress responses for these stressors and the rank of each item are listed in Table 4.

The results indicated that the most stressful sources of acute stress included "I Miss an Easy Basket," "The Referee Reverses a Decision After Prompting by an Opposing Player," "An Opponent Physically Abuses Me," "I Lose Possession of the Ball to an Opponent," "I am Responsible For a Turnover," and "The Referee Makes What I Thought Was a Bad Call on Me." Two of these six acute stressors are related to refereeing decisions and two stressors are linked to personal performance problems. Items which were rated as least stressful by the players included "A Teammate Fails to Stick to a Set Play Allowing the Opposition to Score," "An Opposition Player Verbally

Table 4

Rankings, Mean Scores, and Standard Deviations of Sources of Acute Stress

Source of Acute Stress	Rank	M	SD
Interpersonal Conflicts			
An opponent physically abuse me.	3	3.86	1.13
I suffer pain or injury on court at the hands of an opponent.	8	3.51	1.22
An opponent hits me in frustration for his own mistake.	10	3.23	1.33
An opponent commits an intentional foul on me.	11	3.19	1.12
A teammate criticises me for a mistake I made.	16	3.04	.93
An opposition player verbally abuses me.	22	2.58	1.03
Refereeing Decisions			
The referee reverses a decision after prompting by an opposing player.	2	3.86	1.10
The referee makes what I thought was a "bad" call on me.	6	3.64	1.06
The referee makes a "bad" call on one of my teammates.	7	3.58	1.13
Personal Performance Problems			
I miss an "easy" basket.	1	4.03	1.01
I am responsible for a turnover.	5	3.65	1.00
I decide to force a play and it goes wrong.	12	3.16	.90
An injury prevents me from performing a move.	15	3.08	1.26
I receive a fourth foul.	17	2.94	1.16
I miss an outside shot.	19	2.75	1.03

(Table 4: Continued)

Source of Acute Stress	Rank	M	SD
Opposition Influences			
I lose possession of the ball to an opponent.	4	3.77	.99
My pass is intercepted.	9	3.32	1.01
The player I am marking beats me and scores.	13	3.16	1.02
My shot is blocked.	14	3.09	1.08
An opponent keeps me out of the play by playing man to man on me.	23	2.57	.96
Team Behaviours			
A teammate misses the basket when I am in a better position to score.	18	2.78	1.09
My bench fails to warn me that I have collected four fouls and I receive a fifth.	20	2.74	1.71
A teammate fails to stick to a set play allowing the opposition to score.	21	2.71	1.02
A teammate misses the basket and our team is not ready in an offensive set for the rebound.	24	2.51	1.09
A teammate verbally abuses the referee.	25	2.45	1.21

Abuses Me," "An Opponent Keeps Me Out of the Play by Playing Man to Man on Me," "A Teammate Misses the Basket and Our Team is Not Ready in an Offensive Set For the Rebound," and "A Teammate Verbally Abuses the Referee." All of these stressors, with the exception of the second and third stressors, were related to team behaviours.

Part B: Coping Responses to Sources of Acute Stress

The purpose of Part B of this study was to examine the manner in which basketball players cope with acute stress. An inventory was generated to ascertain players' preferences for using particular coping strategies in response to various acute stressors as identified in the first part of this study. It was predicted that the coping strategies would fall under one of two main coping styles, approach, and avoidance.

Method

Subjects

Subjects were 360 male basketball players, ranging in age from 16 to 50 yrs (*Md* = 23 yrs), who played in the Championship, A-Grade, and B-Grade basketball competitions in New South Wales, Australia. All subjects were volunteers. Subjects were recruited at basketball stadiums after the researcher had gained permission from their respective associations, the Illawarra, and the Sutherland Basketball Associations. Considering the large number of data sets required to perform factor analyses computations, only non-elite athletes were targeted.

Materials

The Coping Strategies in Basketball Inventory (CSBI) was developed for this study to address several methodological problems evident in existing measures of coping (see section "The Measurement of Coping") and help ascertain the coping responses that basketball players use when exposed to sources of acute stress during competition.

Development of the CSBI

In generating the CSBI the first step consisted of selecting various sources of acute

stress from amongst those identified in Part A of this study. These stressors represented situations from which basketball players reported their coping efforts. In accordance with Krohne's (1993) recommendations, the selection criteria for these stressors were based on the degree of stress reported earlier by subjects, and the existence of certain situation parameters (i.e., predictability and controllability) characterising each stressor. Predictability refers to the probability that a source of stress is experienced by a player during a game, while controllability describes the degree of influence the player can exert on the situation while it occurs (Krohne, 1993). Consequently, to be eligible for inclusion into the CSBI, sources of stress had to be considered highly stressful and represent varying degrees of predictability and controllability.

Four sources of acute stress from Part A met these criteria: "I Miss an Easy Basket," "An Opponent Physically Abuses Me," "I Lose Possession of the Ball to an Opponent," and "The Referee Makes What I Thought Was a Bad Call on Me" (see Table 5). These stressors were ranked first, third, fourth, and sixth, respectively, on players' perceived stress intensity. The four stressors retained for the CSBI were also chosen because they represented different categories of stressors in competition basketball, as outlined in Part A. Item 1 (below) represented the category "Interpersonal Conflicts," item 2 "Refereeing Decisions," item 3 "Personal Performance Problems," and item 4 "Opposition Success." No item was chosen from the fifth category, "Team behaviours," due to the relatively low stress ratings accorded to this source of acute stress. The stressor ranked second ("The Referee Reverses a Decision After Prompting by an Opposing Player") was not included in the CSBI because of the rarity of occurrence of this stressor in most games; only two out of 20 players identified this earlier (see Table 3). While this source of stress could be included in an inventory assessing a person's coping style, its infrequent rate of occurrence would render it unsuitable when measuring situational coping responses. Finally, discussions with three players confirmed that these stressors were characterised by varying degrees of predictability and controllability.

As previously indicated, the CSBI will be used in Studies Two and Three of this investigation to identify an individual's dispositional coping style as well as his

situational coping responses. When assessing coping style in the present study the person was asked how he *typically* responds when experiencing each of the four stressful situations described above. When assessing situational responses in the following study, the athlete will be asked to describe what they *actually* did following the same specific stressful episodes.

Table 5

Degree of Predictability and Controllability for Selected Sources of Acute Stress

Source of Acute Stress	Predictability	Controllability
1. An opponent physically abuses me.	— —	— —
2. The referee makes what I thought was a "bad call" on me.	+	—
3. I miss an "easy" basket.	+ +	+
4. I lose possession of the ball to an opponent.	+ +	+

Note. + + = very high, + = high, - = low, - - = very low.

The second step in developing the CSBI was to compile a list of coping items that reflected the theoretical model of interest, that is, the approach-avoidance construct (Roth & Cohen, 1986). The initial pool of items was generated from two main sources. First, strategies representative of the four predetermined subscales (i.e., the four sources of acute stress) were selected from a variety of existing coping inventories (Billings & Moos, 1981; Carver et al., 1989; Cohen & Roth, 1985; Cook, 1985; Crocker, 1992; Endler & Parker, 1990; McCrae, 1984; Tobin et al., 1989). Second, 20 basketball players from New South Wales, Australia, were asked to indicate the coping strategies they used in response to the aforementioned sources of acute stress. A list of 164 coping

strategies were compiled from these two sources. Four doctoral students familiar with the stress and coping literature examined these strategies and, where necessary, adapted each item to reflect the approach-avoidance dichotomy. Items that were redundant or considered inappropriate for managing stress during sports competition were removed. This resulted in four lists of coping strategies, including 23 strategies per source of acute stress with each strategy having been classified according to its method (i.e., approach or avoidance). Thus, the CSBI consisted of four scales each with its own unique list of coping strategies. This final list of strategies was judged as theoretically accurate and realistic. To lend further support for the content validity of the CSBI, a pilot test of 25 players was conducted to assess the appropriateness and the legibility of the items. This test suggested that the coping strategies comprising the inventory have been previously employed by players.

The third step in developing the CSBI involved a pilot-test to assess its validity, in particular, the comprehensibility of its instructions and the applicability of its coping items. Twenty-five basketball players were asked to complete the CSBI and to include comments about any aspect of the inventory that they found difficult to understand, they believed was inappropriate, or they found ambiguous. As a result, slight modifications were made to the instructions and to the sentence structure of the coping items. The final version of each of the four scales still consisted of 23 coping strategies.

Procedures

The CSBI was presented to each player at the basketball stadium at least 20 minutes before they were due to compete. Using a 5-point Likert scale ranging from 1 (not used at all) to 5 (used all the time) the subjects were asked to indicate the frequency with which they used specific coping responses. The following instructions were given for each source of acute stress:

> After experiencing the stressor below during basketball games how often do you **usually** use each of the responses? Using the numbering system below please place a number on **every** line in the answer column.

Results

Validity of the CSBI

Construct validity, the degree to which a test measures a hypothetical construct, was assessed in two ways. First, a principal-components factor analysis with orthogonal (varimax) rotation was conducted on each of the four scales to determine if the items belonging to each source of acute stress would separate into two distinct factors, approach and avoidance. Following the scree test criteria (Cattell, 1978), three factors were rotated on each scale. Factor loadings of a minimum of .40 was set as the criterion for acceptance of an item as suggested by Endler and Parker (1990). Table 6 presents the mean factor loading and the percent of variance accounted for by each of the factors produced within each scale.

The four scales explained 45, 41, 41, and 38 per cent of the total variance, respectively. The first and second factors within each of the scales represented avoidance coping and approach coping, respectively. The one exception to this pattern was the third scale where the first factor identified approach coping and the second factor identified avoidance coping. For example, examining the composition of the first scale, reveals a description of approach and avoidance coping in response to being physically abused by an opponent. For this stressor, approach coping describes the active efforts used to control, manage, or change either the stressful situation or the attendant emotions. It includes items such as, "I try to think about what I should do in response to the abuse," "I appeal to the referee for the foul," and "I use positive self-talk to build up my confidence." Avoidance coping involves thoughts and behaviours that disengage the player from the stressful situation. It includes items such as, "I continue playing as though the incident didn't occur," "I accept it since nothing can be done to change the situation," and "I block off my emotions."

The composition of the approach and avoidance factors was in accord with the a priori assignment of items (see Table 7 for a list of example items). However, the third factor produced following varimax rotation was unexpected. For example, items

Table 6

Mean Factor Loading and Percent of Variance Accounted for by Each of the Interpreted Factors Within Each CSBI Scale

CSBI Scales	Factor		
	Avoidance	Approach	Unknown
1. An opponent physically abuses me.	.68	.53	.55
	26	11	8
2. The referee makes what I thought was a "bad" call on me.	.63	.57	.59
	21	10	10
3. I miss an "easy" basket.	.56	.61	.52
	17	15	9
4. I lose possession of the ball to an opponent.	.59	.57	.49
	17	13	8

contained in this factor on the first scale included, "I let off steam by abusing or trying to hit my opponent in revenge," "I vent my frustrations at something or someone else," "I refuse to believe that the incident happened," and "I put the incident down to bad luck." It was anticipated that the first two items would be interpreted as approach coping strategies, the second two as avoidance coping strategies. The mean item scores for factor 3 within each of the four scales were 1.95, 2.24, 2.27, and 2.22, respectively (see Table 8 for mean item scores for the approach and avoidance factors). The coefficient alphas for this third factor in each of the four scales ranged from .37 to .63, with three of

Table 7

CSBI Scale 1: An Opponent Physically Abuses Me.

Items Listed by A Priori Factor Assignment, With Factor Loadings

Scale Name and Items	Factor Loading
Avoidance Coping	
So that I won't worry, I try not to think about the incident.	.77
I continue playing as though the incident didn't occur.	.76
I treat the incident in a carefree, untroubled way as I refuse to let it bother me.	.74
I try to forget the incident	.72
I block off my emotions.	.71
I accept since nothing can be done to change the situation.	.68
I don't give it another thought as it's just a part of the game.	.66
I try to keep my feelings from interfering with my game.	.66
I keep my feelings to myself.	.65
I try concentrating on the game rather than think about the incident.	.64
I try to calm myself down.	.45
Approach coping	
I use the incident to fire myself up.	.72
I use positive self-talk to build up my confidence.	.56
I yell at my opponent to warn him against fouling me again.	.55
I try to think about what I should do in response to the abuse.	.54
I accept sympathy from someone.	.46
I laugh at my opponent to let him know that such abuse will not put me off my game.	.45
I appeal to the referee for the foul.	.40

Note. Only items with factor loadings greater or equal to .40 were retained.

the four falling below .60. An alpha of .60 or greater is commonly used as an indication of sufficient reliability (Nunnally, 1978). Thus, items loading on this factor were omitted from further analysis. See Appendix B for items and factor loadings for the approach and avoidance factors for each of the four scales.

A second source of evidence for the construct validity of the CSBI is provided by testing several research hypotheses predicting relationships between the approach-avoidance theoretical construct and other variables. This will be addressed in Study 2.

Concurrent validity is a type of criterion validity which determines the effectiveness of a test in predicting responses to related constructs. The concurrent validity of the CSBI was tested by correlating measures of Miller's (1987) Behavioral Style Scale with each scale of the CSBI (see Study 2).

Reliability of the CSBI

The number of items, mean item scores, standard deviations, and the coefficient alpha internal reliabilities for the approach and avoidance factors within each of the four scales are presented in Table 8. Overall, the alpha coefficients were quite satisfactory with only one alpha value falling below .60. This value has been identified as an acceptable criterion for the internal consistency of a scale in past research (Cattell, 1978; Gorsuch, 1983). The correlations between the two factors of each scale were .04, .32, .23, and .26, respectively. The last three of these correlations were significant at the .0001 level. These intercorrelations suggest that the CSBI is a multidimensional measure of coping that can assess two contrasting coping styles separately.

Factor Analysis of the CSBI

In general, the results of the factor analysis performed on each of the scales comprising the CSBI confirmed the hypothesis that coping would be a function of two styles, conceptually labelled approach and avoidance. Twenty-three items per stressor were subjected to a principal-components factor analysis with varimax rotation. Following analysis the first scale of the CSBI retained 18 coping strategies, the second

Table 8

Number of Items, Mean Item Scores, Standard Deviations, and Coefficient Alpha Reliabilities for the CSBI Scales (N = 360)

CSBI Scale	*n* of items	M	SD	Alpha Reliabilities
Avoidance Coping				
1	11	2.91	.79	.87
2	11	2.98	.74	.84
3	11	2.79	.63	.77
4	10	2.96	.68	.79
Approach Coping				
1	7	2.89	.66	.58
2	5	2.84	.72	.66
3	8	3.37*	.72	.77
4	8	3.38*	.68	.74

Note. * Indicates differences between approach and avoidance mean item scores within stressors at the $p < .0001$ level, two-tailed test.

Scale 1: "An Opponent Physically Abuses Me."

Scale 2: "The Referee Makes What I Thought Was a Bad Call on Me."

Scale 3: "I Miss an Easy Basket."

Scale 4: "I Lose Possession of the Ball to an Opponent."

scale 16 strategies, the third scale 19 strategies, and the final scale 18 strategies. Items on each factor, approach or avoidance, were then summed to form mean item scores. This was done separately for each stressor. The mean item scores represent the mean

frequency with which players tend to use either approach or avoidance coping strategies.

Separate paired *t*-tests were used to examine differences between the approach and avoidance means within each stressor to show whether players use approach strategies and avoidance strategies with the same frequency. As a preliminary test of normality, the distribution of the differences between the mean item scores was examined for each stressor. Normality was confirmed in each case. The results of the *t*-tests are reported in Table 8. The data suggest that for particular sources of acute stress basketball players tend to use certain coping strategies more frequently than other types of coping. Levels of $p < .05$ were used to indicate significance. Specifically, subjects reported employing avoidance coping as often as approach coping when experiencing the stressors "An Opponent Physically Abuses Me" $t(359) = .34$, $p > .05$, and "The Referee Makes What I Thought Was a Bad Call on Me" $t(359) = .37$, $p > .05$. But when confronted with either of the following stressors, "I Miss an Easy Basket" $t(359) = 9.58$, $p < .0001$, or "I Lose Possession of the Ball to an Opponent" $t(359) = 4.96$, $p < .0001$, the players used significantly more approach coping than avoidance coping.

Discussion

The purpose of this study was to develop a situation-specific inventory, the CSBI, to assess the coping styles of male basketball players. It was first necessary to identify the sources of acute stress considered most intense by players under competitive conditions. Subsequently, four sources of acute stress were retained. For each of these stressors a wide range of coping strategies were generated which, according to predictions, formed one of two factors (coping styles), approach coping or avoidance coping, following exploratory factor analysis procedures.

Data indicated that the most highly rated sources of acute stress by the players, in descending order, were as follows: "I Miss an Easy Basket," "The Referee Reverses a Decision After Prompting by an Opposing Player," "An Opponent Physically Abuses Me," "I Lose Possesion of the Ball to an Opponent," "I am Responsible for a Turnover,"

and "The Referee Makes What I Thought was a Bad Call on Me." Four of these stressors reflected refereeing decisions, or errors relating to one's performance.

While this study focused on the most intense sources of acute stress experienced during competition, other studies with athletes have chosen not to distinguish competition from non-competition sources of stress, or distinguish chronic from acute sources of stress. For example, various studies (e.g., Cohn, 1990; Scanlan et al., 1991) have attempted to identify all the stressors experienced by athletes during the competitive phases of their sporting careers. This has resulted in several groups of stressors which these researchers have typically labelled competitive stressors, demands and costs of the sport, personal struggles, traumatic experiences, and negative significant-other relationships. Nevertheless, the stressors reported in this study are reasonably consistent with the stressors experienced by athletes during competition in other sports.

Gould et al. (1983), for example, found that wrestlers indicated high stress about performing up to their level of ability, about losing, and after making a physical error. Similar findings have been reported by Pierce and Stratton (1981) with youth sport participants, by Scanlan et al. (1991) with former elite figure skaters, and by Cohn (1990) with golfers. These studies have also recognised additional stressors that were found in this study. These have included: physical injuries that reduce sport skill effectiveness, and receiving "bad" calls by officials. Thus, some sources of stress appear to be evident across sports irrespective of whether the sports involve individual or team participation, or are characterised as contact versus non-contact. Other sources of stress, however, seem to evoke stress reactions of varying magnitudes depending on the particular sport and the level of athlete.

The sports official represents one source of stress that assumes a more prominant role in some sports more than others. In basketball the control that the referee commands is continually reinforced during the game and interpreted by many players as a source of stress. Gould et al.'s (1983) study found that only 15% of wrestlers considered bad calls by officials to represent a major source of worry. This compares to 100% of the subjects in this study who stated that receiving bad calls from the referee was a source of stress.

The athlete's skill level may also be a contributing factor in deciding whether an incident will be perceived as stressful or not. However, Kaissidis (1993) found that elite basketball players were no less stressed when confronted with various acute stressful situationa than non-elite players.

With specific reference to basketball, two other studies have focused on sources of stress related to competition (Fisher & Zwart, 1982; Madden et al., 1990). Fisher and Zwart probed male college athletes' self-reported perceptions of and responses to potential sources of anxiety during pregame, game, and postgame periods. Although many of the stressors were acute in nature, the specificity of the situation surrounding the stressful incident (e.g., You have just committed a shooting foul with the score tied 70-70 and only 2 seconds remaining in the game) makes it difficult to conduct comparisons with the results of other studies. Madden and his colleagues developed and administered their SSBQ to 133 basketball players who regularly participated in competition. When subjects were asked on the SSBQ to rate the degree of stressfulness they experienced in each situation the results corresponded to those found in this study. Rated as highly stressful in both studies were poor refereeing decisions, having the ball stolen, and missing easy lay-ups or jump shots. While the findings from both studies were similar, differences do exist. For example, Madden et al.'s SSBQ contained several sources of chronic stress (e.g., Being beaten by a side that is recognised as an inferior side to the one I am playing with), as well as a coach being listed as a source of stress. It is important to note that the coach was not recognised as a potential stressor in the present study as none of the teams targeted had the services of a coach. Also, while the presence of spectators has often been highlighted as a source of stress for athletes (e.g., Fisher & Zwart, 1982; Gould et al., 1983), players in this study did not mention spectators as a concern. This was probably due to very few spectators attending games.

The results also indicated that little variability existed between subjects' stressors. The following sources of acute stress were frequently reported by players: "The Referee Makes What I Thought Was a Bad Call on Me" (100%), "I Miss an Easy Basket" (100%), "An Opponent Physically Abuses Me" (80%), "I am Responsible for a

Turnover" (80%), "An Opponent Commits an Intentional Foul on Me" (60%), and "I Lose Possession of the Ball to an Opponent" (50%). These frequency data reveal that certain sources of acute stress were considered stressful by most of the athletes. In fact, inspection of the percentages shows that receiving a bad call from the referee and missing an easy basket were stressful. These findings contradict results reported by other researchers investigating sources of stress in sports (Gould et al., 1983; Pierce & Stratton, 1981; Scanlan et al., 1991).

Gould et al. (1983) reported that no single source of stress was experienced by all the wrestlers, with the most frequently mentioned stressor experienced by only 53% of the athletes. Similar frequency data was recorded by Scanlan et al. (1991) with less than half of the elite figure skaters (46%) identifying any one stressor. These researchers proposed that the high level of variability demonstrated by the subjects' responses provided evidence that substantial differences exist in the frequency and intensity of experiencing stress. However, in an exploratory study on sources of stress in youth golf, Cohn (1990) recorded a frequency range of 20% to 100%. The incompatibility between these results may be due to the nature of the population being examined. The present study and Cohn's study both utilised non-elite athletes whereas other studies have investigated elite subjects. Perhaps non-elite athletes are predisposed to making more uniform appraisals than elite athletes.

After identifying the sources of acute stress perceived as most stressful by the basketball players, selected stressors were incorporated into the CSBI. Four sources of acute stress considered highly stressful and reflecting varying degrees of controllability and predictability were retained for development of the CSBI (Krohne, 1988; Miller, 1987). These stressors included "An Opponent Physically Abuses Me," "The Referee Makes What I Thought was a Bad Call on Me," "I Miss an Easy Basket," and "I Lose Possession of the Ball to an Opponent." These stressors were also chosen because, based on the first part of this study, each was considered highly stressful by the players, occurred frequently during competition, and represented a separate category of stressors defined by its own unique theme.

Adopting the approach-avoidance dichotomy postulated by Roth and Cohen (1986), coping strategies specific to each of the four sources of acute stress were then generated. These strategies represented a player's response to the stressful event. Exploratory factor analyses of each of the CSBI's four scales yielded two general groups of strategies, approach coping and avoidance coping.

Inspection of the coping strategies categorised as approach coping and avoidance coping revealed that basketball players used a variety of cognitive and behavioural strategies to manage acute stress during competition. Coping strategies that loaded on the approach coping factors involved the players making a conscious effort to deal with or manage either problem- or emotion-focused aspects of the acute stressful situation. Based on the classification of strategies described in previous studies (e.g., Carver et al., 1989; Crocker, 1992; Larsson et al., 1988; Madden et al., 1990) approach coping on the CSBI consisted of overt attempts to alter the stressor, thinking about how to deal with the stressor, efforts to seek emotional support, and ways of ventilating emotions. By using these coping strategies, players may have attempted to resolve, manage, or control the stressful situation, as well as vent their emotions so they could ultimately reduce stress levels and quickly refocus on the game. Avoidance coping consisted of attempts to avoid thinking about the stressor, behavioural efforts to detach oneself from the stressor, passive acceptance that the stressor occurred, and efforts to avoid confronting one's feelings. These strategies may have been employed by the athlete to allow him to resume concentrating on the game. However, by adopting this course of action, the player chooses not to initiate behaviours or thoughts that may have helped him improve his performance or prepare for unexpected sources of acute stress. The emergence of the approach and avoidance coping styles in the CSBI's scales is consistent with the findings of other studies investigating the structure of coping (e.g., Carver et al., 1989; Endler & Parker, 1990; Tobin et al., 1989; Zautra & Wrabetz, 1991).

As reviewed earlier, Carver et al. (1989) developed the COPE, a multidimensional coping inventory which consists of two clusters of coping strategies. With one exception, these coping strategies reflect the strategies categorised as approach and

avoidance in the CSBI. The exception to this pattern was when basketball players vented their emotions in response to a stressor. The principal-components factor analysis conducted in this study categorised this strategy as approach coping whilst Carver et al. categorised it as denial and behavioural disengagement strategies which describe avoidance coping. The classification of this strategy as an approach response was supported by Tobin et al. (1989). They organised coping strategies into two general groups termed engagement and disengagement. Strategies depicting engagement involved problem-solving, cognitive restructuring, seeking social support, and expressing emotions, whereas disengagement consisted of problem avoidance, wishful thinking, and self-criticism. Zautra and Wrabetz (1991) provided additional evidence for the approach-avoidance construct. They labelled coping efforts as either active or passive. Active (approach) coping strategies consisted of taking action to change the stressor, seeking emotional support, expressing emotions, seeking advice, and trying to solve the problem. Passive (avoidance) coping strategies consisted of trying to forget the stressor, relaxing, and accepting what happened as something that could not be changed.

Separating coping into two distinct styles would seem beneficial to team sport, open skill athletes. Such sports are externally paced providing the athletes with little time to make complex cognitive evaluations. This is evident in a competitive game such as basketball, where a maximum of five players from each team is on the court at any one time and players are forced to make rapid decisions involving few options. They can either confront or ignore the stressor. Depending on the situation either strategy may enable the player to quickly refocus and continue participating in the game with no loss in performance.

Published in the general psychology literature but applicable to sport, Roth and Cohen (1986) explored the utility of an approach-avoidance dichotomy. They suggested that an *approach* strategy was preferable when the situation was controllable, the source of stress known to the person and not novel, and outcome measures were long-term such as the need to remain on task after a period of inactivity following the stressor. However, implementing an *avoidance* strategy might be more appropriate when the

situation was uncontrollable, the source of stress unclear, outcome measures immediate, and emotional resources such as self-esteem limited. The findings from the present study offer partial support for these proposals.

Basketball players tended to use more approach coping than avoidance coping when responding to stressors characterised by high controllability (i.e., missing an easy basket, and losing possession of the ball to an opponent). However, when coping with stressors characterised by minimal controllability (i.e., physical abuse from an opponent, and receiving a bad call from the referee), the players generally used approach coping strategies as often as they used avoidance coping strategies. It must be noted that the level of controllability classifying each of the stressors in this study was assigned by the researcher on an objective basis and not in response to players' appraisals. As Terry (1991) stated: "What is relevant to the prediction of coping is not how others would objectively rate an event (for instance, in terms of its controllability), but the individual's own appraisal of the demands and nature of the situation" (p. 1032). The following study will attempt to clarify this issue.

Researchers have also suggested that athletes might cope more effectively when there is a successful resolution between individual as well as situational factors. This would involve measuring coping strategies in terms of the accompanying characteristics of the stressful situation (e.g., Compas et al., 1988; Holahan & Moos, 1987), and selected personal dispositions such as coping styles (e.g., Krohne, 1992; Terry, 1991). Individualised stress management programs could then be developed that take account of these factors. The next study attempted to assess these variables while using the CSBI to measure the player's coping style. Situational appraisals of control will also be measured to help confirm the findings of the present study.

In summary, the first study identified the sources of acute stress for basketball athletes and their relative degrees of perceived intensity. It was found that not only do particular situations during competition elicit acute stress reactions, but that some of these same situations are considered stressful by all players. Results also revealed that players' cognitive and behavioural coping responses to selected acute stress situations could be

classified according to an approach-avoidance dichotomy. It was concluded that knowledge of an athlete's coping style together with other personal dispositions and situational appraisals would contribute to the generation of more effective intervention programs consisting exclusively of acute stress coping techniques.

CHAPTER FOUR

STUDY TWO

PREDICTORS OF COPING WITH SOURCES OF ACUTE STRESS: THE ROLE OF PERSONAL DISPOSITIONS AND SITUATIONAL APPRAISALS

The purposes of this study were: (1) to examine the effects of both personal dispositions and situational appraisals on the coping strategies of basketball players, (2) to assess whether players are consistent in their choice of coping strategies across a variety of different acute stress situations, and (3) to evaluate associations among selected personal dispositions of the participants in an attempt to help clarify the relationship between coping style and other more traditional predispositions. It was predicted that personal dispositions and situational appraisals each would be significantly related to players' coping responses. Of these two sets of predictors, it was further hypothesised that situational appraisals would be stronger predictors of coping responses than personal dispositions. Finally, significant correlations were expected between athletes' personal dispositions and their coping style. For example, monitoring was thought to be related to an approach coping style, and blunting was expected to be related to an avoidance coping style.

Method

Subjects

Participants were 147 male basketball players belonging to the Championship, A-Grade, and B-Grade basketball competitions in the Illawarra region, in New South

Wales, Australia. Players ranged in age from 17 to 48 yrs (*Md* = 22 yrs).

Materials

Participants in the study were asked to complete two packets of questionnaires. The first packet, which was called the PDQ (Personal Disposition Questionnaires), contained several existing psychological inventories for measuring various personal dispositions. These consisted of the Rosenberg Self-Esteem Scale (Rosenberg, 1965), the Levenson Multidimensional Locus of Control Scale (Levenson, 1981), the Miller Behavioral Style Inventory (Miller, 1987), and the Coping Strategies in Basketball Inventory (CSBI) which was developed in the first study. These scales measured self-esteem, internal control beliefs, monitoring-blunting coping style, and approach-avoidance coping style, respectively.

The second packet of questionnaires which the players completed focused on coping processes experienced in response to four acute stressors, or situations, on court. Designated the GQ (Game Questionnaires), these surveys assessed situational variables including perceived stress intensity, primary and secondary appraisals, and situational coping responses. All of these variables were measured using single items.

Personal Dispositions

Coping Strategies in Basketball Inventory (CSBI). The CSBI, developed in the first study, was used to assess the athletes' approach-avoidance coping style. As described earlier, the CSBI consisted of four sources of acute stress each with its own list of coping strategies (i.e., four scales). The four sources of acute stress included, "Receiving Physical Abuse From an Opponent," "Receiving What I thought Was a Bad Call From the Referee," "Missing an Easy Basket," and "Losing Possession of the Ball to an Opponent." The first scale of the CSBI comprised 18 coping strategies, the second scale 16 strategies, the third scale 19 strategies, and the final scale 18 strategies. Each set

of coping strategies within the four scales described two coping styles, conceptually labelled approach and avoidance.

Using the CSBI players were asked to indicate the frequency with which they *usually* used specific coping strategies in response to the aforementioned sources of acute stress. Each item was scored on a 5-point Likert scale ranging from 1 (not used at all) to 5 (used all the time). Thus, coping styles were defined not in terms of a preference for one type of coping over another, but in terms of reported tendencies to use each of the coping strategies to a greater of lesser degree in response to a source of acute stress.

In the first study, the construct validity of the inventory was established using factor analysis procedures which indicated that items constituted two distinct factors, approach and avoidance. The composition of these two factors was in agreement with the a priori assignment of items. The reliability of the CSBI also appeared to be satisfactory with only one of the factors having an alpha coefficient below .60 (see Table 8). The CSBI appears as Questionnaire 1 in Appendix C.

Self-Esteem Scale (SES). Self-esteem was assessed using Rosenberg's (1965) 10-item scale. The scale contains equal numbers of both positively and negatively worded items. Each item was responded to on a 4-point response scale ranging from "strongly agree" to "strongly disagree." Among the items on the scale were: "I feel that I have a number of good qualities," and "At times I think I am no good at all" (see Questionnaire 2, Appendix C). This widely used scale has been shown to possess adequate convergent and discriminant validity (Silber & Tippett, 1965).

Multidimensional Locus of Control Scale (MLCS). Players' generalised control beliefs were assessed with 8 items from Levenson's (1981) MLCS. For each of the items respondents indicated on a 6-point response scale (1 = strongly disagree, 6 = strongly agree) how well the statements described them. High scale scores reflected internal control beliefs. Examples of items included the following: "When I make plans, I am almost certain to make them work," and "I am usually able to protect my personal

interests." Levenson has reported adequate validity for this instrument and a test-retest reliability for a 7-week period of .66. It has also been found to be uncontaminated by social desirability. The MLCS appears as Questionnaire 3 in Appendix C.

Miller Behavioral Style Scale (MBSS). Miller's (1987) scale required the respondent to imagine four stress-evoking scenes. Each scene was followed by eight statements that represented different ways of dealing with the situation to which respondents either agreed or disagreed (see Questionnaire 4, Appendix C). Half of the statements described efforts to monitor or seek information (e.g., in response to a turbulent plane flight: "I would read and reread the safety instruction booklet") while the other half described blunting or distracting responses (e.g., "I would watch the in-flight movie, even if I had seen it before"). Based on their scores, individuals were divided into high and low monitors and blunters depending on whether the items endorsed on the respective scales were above or below the medians. The MBSS has been validated in a number of contexts demonstrating good predictive ability and, according to Miller (1990), was unrelated to trait measures such as repression-sensitisation, anxiety, depression, optimism, and Type A, as well as demographic variables such as sex, race, age, educational status, and marital status. Finally, it has been shown to be highly stable with a test retest reliability of .80 over a three month period.

Situational Variables

Stress. The perceived stressfulness of the situation was assessed with a single item (Appendix D, items 1, 6, 11, 16). In response to each of the four sources of acute stress players were asked to indicate to what extent they felt stressed on a scale of 1 (not at all) to 5 (very). This technique has been used by several other researchers when measuring appraisals of stress (e.g., Aldwin & Revenson, 1987; Kaissidis, 1993; Ptacek, Smith, Espe, & Rafferty, 1994).

Primary Appraisal. Respondents were asked to indicate on a 5-point scale to what extent they felt challenged (see Appendix D, items 2, 7, 12, 17) and threatened (see Appendix D, items 3, 8, 13, 18) upon experiencing the stressful situations (1 = not at all, 5 = very). Several emotions described each of these appraisals. The items, "pumped up," "confident," "alert," and "eager," were intended to reflect challenge appraisals, whereas the items, "disappointed," "irritated," "uncertain," "worried," and "anxious," were used as indicators of threat appraisals. These terms were identical to those used in other studies (Carver & Scheier, 1994; Folkman & Lazarus, 1985; Larsson et al., 1988).

Secondary Appraisal. Appraisal of each of the situation's perceived controllability was assessed with a single item (see Appendix D, items 4, 9, 14, 19). Players rated on a 5-point scale the degree to which the situation was one they felt they could change or do something about (1 = not at all, 5 = very much). Similar control appraisals have been measured in many other studies investigating coping processes (e.g., Carver et al., 1989; Johnston & McCabe, 1993; Kaissidis, 1993).

Situational Coping. Players' actual coping efforts were measured by the CSBI in a situational format. Carver and his colleagues (Carver & Scheier, 1994; Carver et al., 1989) have utilised such a format in recent studies to examine the relation between dispositional coping and situation-specific coping. In the present study, basketball players were required to specify the one response that best represented how they handled each of the four situations. For example, if after being physically abused by an opponent a player attemped to cope by actively forgetting the incident, he would have ticked the item, "I tried to forget the incident." Roth and Cohen (1986) were among the first to advocate the use of such a dichotomy of coping strategies. In the sport psychology literature it has been argued that in situations of a time-limited nature (i.e., acute stress situations), athletes will implement either an avoidance strategy or an approach strategy rather than multiple coping efforts (Anshel, 1994; Johnston & McCabe, 1993). Accordingly, players were presented with the CSBI described earlier, except in this study

the tense in which each coping strategy was versed changed. For example, in response to the situation, "Receiving What I Thought Was a Bad Call From the Referee," a situational response might be "I tried to learn from the experience by analysing what I did wrong" rather than the equivalent dispositional, or *usual*, response, "I try to learn from the experience by analysing what I did wrong." The situational format of the CSBI appears in Appendix D, items 5, 10, 15, and 20.

Procedures

Teams were approached following games and invited to participate in the research. They were told that the purpose of the research was to investigate how basketball players dealt with stressful situations during games, and accordingly, would be required to complete two packets of questionnaires. To allow the researcher to match an individual's responses from both of the questionnaires players were allocated code numbers. This helped to ensure player anonymity. As an incentive to participate in the study, players who completed all of the questionnaires were entered into a lottery, the prize consisting of $100.

Ptacek et al. (1994) have recently questioned the assumption that retrospective accounts are accurately measuring what subjects actually did to cope with an event. They argued that with the passage of time a subject's ability to accurately recall coping efforts is reduced. To limit this effect basketball players were instructed to complete one of the packets of questionnaires, the GQ, immediately after participating in a game. To help individuals reconstruct each of the situations described in the GQ players were given the following instructions:

> We are interested in how basketball players respond when they are confronted with certain stressful situations on court. For example, you must begin by trying to reconstruct an occasion in the game you just played when you were physically abused by an opponent. Think of the most stressful occurrence of such an incident. Try to remember this situation as vividly as you can. Try to go back and reexperience how you felt during that situation. Think about what happened and what it felt like. What led up to the situation? Who was involved? Now, in this questionnaire we want you to indicate how you felt and what you

did after experiencing this physical abuse. When you are ready, and have recalled the situation as completely and as vividly as you can, please answer the questions on the pages that follow with these feelings in mind.

After the GQ was completed, players (N = 147) were given the second packet of questionnaires, the PDQ, which was to be taken home and returned to the researcher within four weeks. Follow-up visits were made to the basketball stadium to remind players to return the PDQ. Eighty-six players (59%) complied. These rates compare favourably with those reviewed by Patton (1990).

Thus, complete sets of data comprising a GQ and a PDQ existed for 86 players while a further 61 players had completed a GQ but not a PDQ. Independent sample t-tests detected no significant differences between these two groups of players on any of the situational appraisal measures contained on the GQ. Thus, when investigating situational appraisal results data from both groups of players were pooled.

Results

Analyses of data collected from the present study was based on two sets of independent variables: (1) personal dispositions, which include measures of self-esteem, internal control beliefs, monitoring-blunting coping style, and approach-avoidance coping style, and (2) situational variables, which include stress intensity, primary appraisals (perceived challenge and perceived threat), secondary appraisal (perceived control), and situational coping. The aim of these analyses was to investigate the effects of both personal dispositions and situational appraisals on approach and avoidance coping, as measured by the situational CSBI, within each of the four sources of acute stress situations separately. The justification for examining these effects within each situation as opposed to across the four situations collectively is due to spuriously high estimates of behavioural stability when data is aggregated over situations (Day, Marshall, Hamilton, & Christy, 1983; Epstein, 1983). As Bolger (1990) asserted, "These types of measures do not permit one to rule out the possibility that differences in people's coping strategies reflect differences in the type of stressors they experience" (p. 526). At this point the

reader should be made aware that stressors and situations are considered synonymous in the context of this study.

Results are presented in four main sections. In the first section, the means and standard deviations of the situational appraisals in response to each of the four situations are presented, as well as an overview of the coping strategies used. In the second section, analyses are conducted for evidence of cross-situational consistency of coping strategies. The remaining two sections assessed several hypotheses within each of the four situations. The first of these two sections investigated relationships between personal dispositions and situational appraisals, and the second evaluated the extent to which personal dispositions and situational appraisals predicted situation-specific coping responses.

Cronbach's (1951) coefficient alpha was calculated to assess the reliability of each of the scales used in the present study. Descriptive and psychometric data for these scales are presented in Table 9.

Unlike the first study, factor analysis procedures could not be used to verify the factor structure of the CSBI due to the small sample size of basketball players. An alternative procedure recommended by Comrey (1988) was used. For each of the approach and avoidance factors within the four scales of the CSBI, coefficient alphas were computed to check whether these items were measuring the same constructs. All of these alpha reliabilities were above .60 with the exception of the first scale. The coefficient for the approach coping factor for this scale was .45. Coefficients for the other scales ranged from .67 to .89, and therefore, were considered acceptably high.

Further evidence for the construct validity of the CSBI was provided by its ability to confirm research hypotheses predicting relationships between the approach-avoidance theoretical construct and certain variables (Cattell, 1978). For example, analysis of data in the present study revealed that high degrees of stress and challenge perceptions significantly predicted the use of approach coping, while threat perceptions predicted avoidance coping responses. Thus, it appeared that the CSBI was measuring the constructs of approach and avoidance coping. Partial support for the concurrent validity

Table 9

Descriptive Statistics and Internal Consistency Values for Personal Disposition Measures for the Four Acute Stress Situations (n = 86)

Scale	*n* of items	Mean	SD	Alpha Reliabilities
Internal control beliefs	8	35.75	6.62	.68
Self-Esteem	10	32.33	4.67	.86
Monitoring	16	11.16	2.52	.61
Blunting	16	6.01	2.83	.57
Approach coping style[1]	7	2.69	.56	.45
Avoidance coping style[1]	11	2.93	.79	.87
Approach coping style[2]	6	2.62	.77	.67
Avoidance coping style[2]	10	3.05	.78	.89
Approach coping style[3]	8	3.52	.68	.77
Avoidance coping style[3]	11	2.73	.69	.83
Approach coping style[4]	8	3.52	.68	.80
Avoidance coping style[4]	10	2.78	.73	.87

1 Situation 1 (Receiving Physical Abuse From an Opponent)

2 Situation 2 (Receiving What I Thought Was a Bad Call From the Referee)

3 Situation 3 (Missing an Easy Basket)

4 Situation 4 (Losing Possession of the Ball to an Opponent)

of the CSBI was found by its association with the MBSS. There was some evidence that approach was related to monitoring and avoidance was related to blunting. Overall, the psychometric properties of the CSBI appeared to be valid, although caution must be exercised when interpreting results concerning the approach factor within the first scale because of its low alpha coefficient.

Overview of Situational Variables Across Situations

Situational Appraisals

Descriptive statistics of players' scores for each of the situational appraisal variables during the four acute stress situations are shown in Table 10. To examine whether differences existed between the players' various situational appraisals over the four situations a series of one-way repeated measures ANOVAs were computed. If a univariate F was significant, paired t-tests were calculated to determine between which means the significant differences were. A Bonferroni adjustment of .0083 was computed for all of the comparisons to control for the experimentwise error rate due to the multi-use of t-tests.

A significant difference was found between situations for stress intensity, $F(3, 438) = 2.98$, $p < .05$. Follow-up paired t-tests showed that players reported episodes involving "Losing the Ball" to be significantly more stressful than "A Bad Call," $t(146) = 7.97$, $p < .005$.

To determine if differences existed between the players' primary appraisals across the four stressful situations, separate ANOVAs were calculated, first, for the perceived challenge means, and second, for the perceived threat means. A significant difference was found between the perceived challenge means across situations, $F(3,438) = 16.75$, $p < .0001$. Paired t-tests indicated that "Physical Abuse" was perceived as significantly more challenging than both "A Bad Call," $t(146) = 29.64$, $p < .0001$, and "Missing an Easy Basket," $t(146) = 32.08$, $p < .0001$. "Losing the Ball" was also perceived as being more challenging than "A Bad Call," $t(146) = 11.57$, $p < .0009$, and "Missing an Easy Basket," $t(146) = 26.90$, $p < .0001$.

Concerning the perceived threat means, a significant difference was found across situations, $F(3, 438) = 18.23$, $p < .0001$. Follow-up tests showed that players perceived "Missing an Easy Basket" as more threatening than "Physical Abuse," $t(146) = 28.97$, $p < .0001$, and "A Bad Call," $t(146) = 12.94$, $p < .0004$. "Physical Abuse" and "A Bad Call" were also perceived as being less threatening than "Losing the Ball." Specifically,

Table 10

Means and Standard Deviations of Situational Appraisals for Each of the Acute Stress Situations (N = 147)

	Acute Stress Situation			
Variable	Physical Abuse	A "Bad" Call	Missing an "Easy" Basket	Losing the Ball
Stress Intensity				
M	3.50	3.44	3.59	3.71
SD	.99	.97	1.08	1.00
Perceived Challenge				
M	3.88	3.34	3.23	3.73
SD	.97	1.10	1.18	1.02
Perceived Threat				
M	2.35	2.62	3.07	3.08
SD	1.10	1.24	1.31	1.26
Perceived Control				
M	2.95	1.88	3.46	3.53
SD	1.15	1.04	1.39	1.22

this situation was perceived as being significantly more threatening than both "A Bad Call," $t(146) = 17.49$, $p < .0001$, and "Physical Abuse," $t(146) = 38.79$, $p < .0001$.

Finally, analyses of the players' secondary appraisals revealed that perceived controllability varied across situations, $F(3, 438) = 79.89$, $p < .0001$. Paired t-tests revealed that players reported "A Bad Call" to be significantly less controllable than "Physical Abuse," $t(146) = 90.90$, $p < .0001$, "Missing an Easy Basket," $t(146) = 144.54$, $p < .0001$, and "Losing the Ball," $t(146) = 171.27$, $p < .0001$. "Physical Abuse" was also significantly less controllable than "Missing an Easy Basket," $t(146) = 14.01$, $p < .0003$, and "Losing the Ball," $t(146) = 23.31$, $p < .0001$.

Situational Coping Responses

Results from the CSBI on the approach and avoidance coping responses for each stressor consisted of the most frequently cited strategies and the percentage of players who used them (see Table 11). In response to "Physical Abuse" 70% of players used approach coping ($n = 103$) while the remainder used avoidance coping ($n = 44$). The most frequently cited approach coping responses were "I appealed to the referee for the foul" ($n = 35$, 24% of all players) and "I used the incident to fire myself up" ($n = 33$, 22%). Avoidance coping responses most frequently used included "I continued playing as though the incident didn't occur" ($n = 9$, 6%) and "I tried concentrating on the game rather than think about the incident" ($n = 8$, 5%).

Avoidance coping was used by 63% of players ($n = 94$) in response to "A Bad Call." The most frequently cited avoidance coping responses included "I accepted it since nothing could be done to change the situation" ($n = 25$, 17%), "I tried to forget the incident" ($n = 14$, 10%), and "I tried concentrating on the game rather than think about the call" ($n = 14$, 10%). The most frequently cited approach coping responses were "I thought about how I should change my play so as to avoid receiving similar calls in future" ($n = 17$, 12%) and "I tried to look at the incident from the referee's perspective to understand why he called a foul" ($n = 14$, 10%).

Approach coping was used by 76% of players ($n = 111$) after "Missing an Easy Basket." The approach coping responses to which players most frequently referred included "I tried to learn from the experience by analysing what I did wrong" ($n = 29$,

Table 11

Selected Situational Coping Responses and the Percentage of Basketball Players Who Used Them (N = 147)

Approach Coping Responses	n	%	Avoidance Coping Responses	n	%
Receiving Physical Abuse From an Opponent					
I appealed to the referee for the foul	35	24	I continued playing as though the incident didn't occur	9	6
I used the incident to fire myself up	33	22	I tried concentrating on the game rather than think about the incident	8	5
I yelled at my opponent to warn him against fouling me again	12	8	I didn't give it another thought as it's just a part of the game	6	4
I laughed at my opponent to let him know that such abuse would not put me off my game	11	8			
Receiving What I Thought Was a "Bad" Call From the Referee					
I thought about how I should change my play so as to avoid receiving similar calls in future	17	12	I accepted it since nothing could be done to change the situation	25	17
			I tried to forget the incident	14	10
I tried to look at the incident from the referee's perspective to understand why he called a foul	14	10	I tried concentrating on the game rather than think about the call	14	10
I tried to learn from the experience by analysing what I did wrong	9	6	I didn't give it another thought as bad calls are just a part of the game	13	9
Missing an "Easy" Basket					
I tried to learn from the experience by analysing what I did wrong	29	20	I tried to forget the error	11	8
I told myself that next time I wouldn't make the same mistake	18	12	I tried concentrating on the game rather than think about the error	7	5
I thought about how I should have performed the skill correctly	17	11	I accepted it since nothing could be done to change the situation	5	3
I used the error to fire myself up	15	10			

(Table 11: Continued)

Approach Coping Responses	n	%	Avoidance Coping Responses	n	%
Losing Possession of the Ball to an Opponent					
I tried to correct my mistake by trying to reclaim the ball	37	25	I tried to forget the incident	9	6
I tried to learn from the experience by analysing what I did wrong	16	11	I accepted it since nothing could be done to change the situation	9	6
I thought about the options that I should have used prior to making the error	15	10	I tried concentrating on the game rather than think about the error	8	5
I used the error to fire myself up	12	8			

20%) and "I told myself that next time I wouldn't make the same mistake" (n = 18, 12%). The response, "I tried to forget the error" (n = 11, 8%) was the form of avoidance coping used most often.

In response to "Losing the Ball" 78% of players used approach coping (n = 115). The most frequently cited approach coping responses were "I tried to correct my mistake by trying to reclaim the ball" (n = 37, 25%) and "I tried to learn from the experience by analysing what I did wrong" (n = 16, 11%). The most frequently cited avoidance coping responses used by players included "I tried to forget the incident" (n = 9, 6%) and "I accepted it since nothing could be done to change the situation" (n = 9, 6%).

Cross-Situational Consistency of Coping Responses

To determine whether the basketball players used similar coping strategies across situations a multiway frequency analysis was performed. This analysis is similar to a chi-square test which examines the associations between two discrete variables, except that in this case, four discrete variables existed (Tabachnick & Fidell, 1989). Thus, the purpose of the multiway frequency analysis was to examine associations among the players' coping responses across the four situations. Models were constructed containing various combinations of the possible associations among the discrete variables, following the guidelines of Tabachnick and Fidell (1989). A process was then followed where different models were systematically eliminated until one model was found that included only the associations necessary to reproduce the observed frequencies. The observed frequencies that were obtained in the present study are displayed in Table 12. These frequencies reflect the number of players who used particular combinations of coping strategies across the situations. For example, from Table 12 it is apparent that nine of the 147 (6%) players used avoidance coping across all of the situations, and that 32 (22%) players used approach coping across all four situations.

The first step towards fitting a model involved screening the data to determine if there were any effects or associations between the players' coping responses across the

Table 12

Coping Response Combinations Across Situations and Their Observed Frequencies (N = 147)

Physical Abuse	A "Bad" Call	Missing an "Easy" Basket	Losing the Ball	Frequency
•	•	•	•	32
•	•	•	o	3
•	•	o	•	7
•	•	o	o	3
•	o	•	•	35
•	o	•	o	10
•	o	o	•	7
•	o	o	o	4
o	•	•	•	6
o	•	•	o	1
o	o	•	•	22
o	o	•	o	2
o	o	o	•	6
o	o	o	o	9

Note. • represents an approach strategy, O represents an avoidance strategy.

four situations. This was accomplished using PROC CATMOD (SAS Institute Inc., 1990), a program that provided several possible models for fitting the data. The results

are summarised in Table 13.

In the second step, the simplest model was identified after testing each of the selected models. This was achieved by examining the goodness of fit likelihood statistic, G^2, for each of the models. An acceptable model is one with a nonsignificant G^2. Using an alpha level of .05 as the cut-off for acceptance of a model, the first five models were found to be provisionally acceptable. Choosing between these models requires that an additional criterion be used. As a term is deleted from a model a check is made that the change in G^2, which is due to the removal of this term, is statistically nonsignificant. Table 13 shows the change in G^2 between models. The aim is to find the simplest model which has a nonsignificant goodness of fit likelihood statistic. Using this approach, the model selected had a likelihood statistic X^2 (7) = 9.69, $p < .21$, indicating a good fit between observed frequencies and expected frequencies. This model contained all first-order effects and two two-way associations.

The first order effects illustrated the preference of players to utilise one particular form of coping within each of the four situations. In particular, the use of approach coping strategies was preferred in the three situations, "Physical Abuse," χ^2 (1, N = 147) = 17.59, $p < .001$, "Missing an Easy Basket," χ^2 (1, N = 147) = 11.02, $p < .001$, and "Losing the Ball", χ^2 (1, N = 147) = 21.83, $p < .001$. Avoidance coping was dominant in the situation, "A Bad Call," χ^2 (1, N = 147) = 11.86, $p < .001$.

With respect to the issue of cross-situational consistency in coping responses, the two-way associations are of primary importance. Significant associations were found in the coping responses between the situations, "Physical Abuse," and "A Bad Call," χ^2 (1, N = 147) = 6.14, $p < .05$, and between the situations, "Missing an Easy Basket," and "Losing the Ball," χ^2 (1, N = 147) = 11.24, $p < .001$. Of the 94 players who used avoidance coping in response to "A Bad Call," 40% (n = 37) also used avoidance coping after "Physical Abuse." And of the 53 players who used approach coping after "A Bad Call," 87% (n = 46) used the same form of coping in response to "Physical Abuse." Overall, 31% (n = 46) of players used approach coping and 25% (n = 37) of players used avoidance coping in both of these situations.

Table 13

Summary of Hierarchical Models and Their Goodness of Fit Statistics (N = 147)

Model	df	G^2	p	Change in G^2
S1*S2 S1*S3 S1*S4 S2*S3 S2*S4 S3*S4	3	3.43	.3297	-
S1*S2 S1*S3 S2*S3 S2*S4 S3*S4	4	3.49	.4796	.06*
S1*S2 S1*S3 S2*S4 S3*S4	5	3.95	.5561	.46*
S1*S2 S1*S3 S3*S4	6	5.97	.4264	2.02*
S1*S2 S3*S4	7	9.69	.2071	3.72*
S3*S4	8	16.75	.0328	7.06
S1 S2 S3 S4	9	27.86	.0010	11.11

Note. * $p > .05$ with df = 1.

S1 represents, "Receiving Physical Abuse From an Opponent."

S2 represents, "Receiving What I Thought Was a Bad Call From the Referee."

S3 represents, "Missing an Easy Basket."

S4 represents, "Losing Possession of the Ball to an Opponent."

Of the 115 players who used approach coping after "Losing the Ball," 83% ($n = 95$) also used approach coping after "Missing an Easy Basket." Among the 32 players who used avoidance coping in response to "Losing the Ball," 50% ($n = 16$) also used avoidance coping after "Missing an Easy Basket." Overall, 65% ($n = 95$) of players used approach coping while only 11% ($n = 16$) of players used avoidance coping in both of these situations.

Therefore, only partial support was found for the cross-situational stability for coping. In particular, high levels of consistency of approach coping existed between the situations, "A Bad Call," and "Physical Abuse," and between the situations, "Losing the Ball," and "Missing an Easy Basket." No evidence was found for the cross-situational stability of avoidance coping.

Relationships Within Sets of Variables Predicting Situational Coping

The intercorrelations within each set of predictor variables are presented in this section. The first set of these correlations examined relationships between selected personal dispositions, whereas the second set of correlations examined relationships between situational appraisals. These intercorrelations are described separately for each of the four acute stress situations.

Situation 1: Receiving Physical Abuse From an Opponent

Correlations between the personal dispositions, and between the situational appraisals for "Physical Abuse" are shown in Table 14. In terms of relationships between personal dispositions, only three significant relationships were found. Specifically, internal control beliefs were significantly correlated with self-esteem, and a negative significant correlation was observed between blunting and monitoring. However, approach coping was not related to the dimension of monitoring, nor was avoidance coping related to blunting. Also, internal control beliefs were significantly correlated with avoidance coping. Thus, players with higher generalised control belief

Table 14

Intercorrelations Between Personal Dispositions and Between Situational Appraisals in Response to the Situation, "Receiving Physical Abuse From an Opponent"

Variable	1	2	3	4	5	6
			Personal Dispositions			
1. Approach	-					
2. Avoidance	-.16	-				
3. Internal control	.01	.20*	-			
4. Self-Esteem	.04	.14	.24*	-		
5. Monitoring	.11	.01	.06	-.06	-	
6. Blunting	.18	.16	-.13	-.03	-.31**	-
			Situational Appraisals			
1. Stress intensity	-					
2. Perceived challenge	.34***	-				
3. Perceived threat	.27***	.14	-			
4. Perceived control	.17*	.09	.08	-		

Note. Personal Dispositions $n = 86$, Situational Appraisals $N = 147$.

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed tests).

were likely to use more avoidance coping strategies.

The second set of intercorrelations indicated several relationships between situational appraisals. Three of the six were statistically significant. More specifically, stress intensity was significantly correlated with both challenge perceptions and threat perceptions. Also, the correlation between perceived control and stress intensity was somewhat low, but statistically significant. This may suggest that high perceptions of control are related to increased stress. Finally, in terms of correlations between perceived control and primary appraisals, perceived control was unrelated to perceived challenge and perceived threat (see Table 14).

Situation 2: Receiving What I Thought Was a Bad Call From the Referee

Four significant relationships were indicated between personal dispositions for this situation. Specifically, as shown in Table 15, internal control beliefs were significantly correlated with avoidance coping. Thus, players with higher generalised control beliefs were likely to use more avoidance coping strategies. Also, internal control beliefs were significantly correlated with self-esteem, and a significant negative correlation was observed between blunting and monitoring. On the other hand, a significant positive correlation was observed between approach coping and avoidance coping. Finally, avoidance coping was unrelated to blunting, and approach coping was not related to the dimension of monitoring.

Several intercorrelations between situational appraisals were statistically significant. Specifically, moderate significant correlations were found between stress intensity and both challenge perceptions and threat perceptions. Also, challenge perceptions were significantly correlated with threat perceptions. However, perceived control was unrelated to stress intensity. Also, the correlations of perceived control with perceived challenge and with perceived threat were not significant.

Table 15

Intercorrelations Between Personal Dispositions and Between Situational Appraisals in Response to the Situation, "Receiving What I Thought Was a Bad Call From the Referee"

Variable	1	2	3	4	5	6
			Personal Dispositions			
1. Approach	-					
2. Avoidance	.24*	-				
3. Internal control	.01	.24*	-			
4. Self-Esteem	-.07	.18	.24*	-		
5. Monitoring	.17	.01	.06	-.06	-	
6. Blunting	.18	.16	-.13	-.03	-.31**	-
			Situational Appraisals			
1. Stress intensity	-					
2. Perceived challenge	.41***	-				
3. Perceived threat	.41***	.27***	-			
4. Perceived control	.05	.02	-.01	-		

Note. Personal Dispositions $n = 86$, Situational Appraisals $N = 147$.

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed tests).

Situation 3: Missing an Easy Basket

Several significant relationships were observed between personal dispositions. As shown in Table 16, internal control beliefs were significantly correlated with both an approach coping style, and with self-esteem. Thus, players with higher generalised control beliefs were likely to use more approach coping strategies and to have higher self-esteem. Blunting was significantly correlated with an avoidance coping style, and had a negative significant correlation with monitoring. However, approach coping was not related to monitoring.

Several relationships were also found between situational appraisals. Five of the six intercorrelations were statistically significant. More specifically, moderate significant correlations were observed between stress intensity and both challenge perceptions and threat perceptions. The remaining three significant correlations were somewhat low. Specifically, perceived control was significantly correlated with stress intensity, suggesting that high perceptions of control are related to increased stress. Also, perceived control was significantly correlated with challenge perceptions. Finally, a significant positive relationship was observed between threat perceptions and challenge perceptions.

Situation 4: Losing Possession of the Ball to an Opponent

Five significant relationships were found between personal dispositions (see Table 17). Specifically, monitoring and internal control beliefs were both significantly correlated with an approach coping style. Therefore, high monitors (i.e., individuals who prefer to seek information about the source of stress) and players with higher generalised control beliefs were likely to use more approach coping strategies. On the other hand, blunting was significantly correlated with an avoidance coping style, and had a significant negative correlation with monitoring. Finally, a significant positive relationship existed between internal control beliefs and self-esteem.

The second set of intercorrelations indicated several relationships between situational appraisals. Perceived control was significantly correlated with stress intensity,

Table 16

Intercorrelations Between Personal Dispositions and Between Situational Appraisals in Response to the Situation, "Missing an Easy Basket"

Variable	1	2	3	4	5	6
			Personal Dispositions			
1. Approach	-					
2. Avoidance	.02	-				
3. Internal control	.21*	.08	-			
4. Self-Esteem	.09	.07	.24*	-		
5. Monitoring	.17	-.04	.06	-.06	-	
6. Blunting	.14	.20*	-.13	-.03	-.31**	-
			Situational Appraisals			
1. Stress intensity	-					
2. Perceived challenge	.28***	-				
3. Perceived threat	.43***	.19*	-			
4. Perceived control	.19*	.19*	-.07	-		

Note. Personal Dispositions $n = 86$, Situational Appraisals $N = 147$.

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed tests).

Table 17

Intercorrelations Between Personal Dispositions and Between Situational Appraisals in Response to the Situation, "Losing Possession of the Ball to an Opponent"

Variable	1	2	3	4	5	6
			Personal Dispositions			
1. Approach	-					
2. Avoidance	.09	-				
3. Internal control	.30**	.14	-			
4. Self-Esteem	.05	.11	.24*	-		
5. Monitoring	.26**	-.05	.06	-.06	-	
6. Blunting	.09	.21*	-.13	-.03	-.31**	-
			Situational Appraisals			
1. Stress intensity	-					
2. Perceived challenge	.34***	-				
3. Perceived threat	.56***	.13	-			
4. Perceived control	.16*	.41***	-.02	-		

Note. Personal Dispositions $n = 86$, Situational Appraisals $N = 147$.

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed tests).

and with challenge perceptions. This suggests that high perceptions of control are related to increased stress and to increased challenge appraisals. However, perceived control was not related to threat perceptions. Finally, the relationships between stress intensity and both challenge perceptions and threat perceptions were significant and moderate and moderate to high, respectively.

Predictors of Situational Coping

Multiple logistic regression analyses were used to examine the relationships between each set of independent variables (personal dispositions and situational appraisals) and the basketball players' situational coping responses for each of the four sources of acute stress. This type of analysis is particularly useful when the dependent variable is dichotomous (Hosmer & Lemeshow, 1989; Kleinbaum, Kupper, & Morgenstern, 1982). In the present study, the dependent variable involved a player employing either an approach or an avoidance strategy. Analyses were performed using PROC LOGISTIC (SAS Institute Inc., 1990). Three multiple logistic regressions were performed for each acute stress situation.

To evaluate the relative contribution of the personal and situational variables to the total explained variance, the first two regression models were computed. Folkman et al. (1986a) argued that this could be achieved by altering the order in which the sets of independent variables are entered into the different regression models. In the first logistic regression model the personal dispositions were entered first, followed by the situational appraisal variables. This order reflected Lazarus and Folkman's (1984) theoretical framework where personal dispositions are antecedents of appraisal and coping processes. In the second logistic regression model this order of entry was reversed. A third regression model, a stepwise logistic regression model, was also calculated for each of the four situations to identify the most influential variables in predicting the players' coping responses. When performing these regression analyses a screening criterion level of .25, as recommended by Hosmer and Lemeshow (1989), was adopted to allow

variables entry into the model.

Finally, prior to computing these regressions, diagnostics for collinearity among the personal and situational variables was carried out, and an analysis of the residuals were conducted, to determine if the assumptions underlying regression analyses were violated. The assumptions included tests of normality, linearity, and homogeneity. When these assumptions were met, interpretation of the regression models was not threatened.

Situation 1: Receiving Physical Abuse From an Opponent

No evidence of multicollinearity was found with the highest correlation being .34 between perceived challenge and stress intensity. However, data belonging to two players were detected as outliers and were, thus, removed from further analyses leaving a sample of 84 subjects.

As is evident from Table 18, the personal and situational variables together explained 26% of the deviance (in logistic regression analysis, deviance is analogous to the variance described in linear regression). The personal dispositions accounted for 25% of the deviance ($p < .01$), whereas situational appraisals added only 1% unique deviance ($p > .05$). When all of the variables were in the model, two personal disposition variables emerged as significant predictors of situational coping responses. Specifically, an approach coping style was significantly associated with an approach coping response ($p < .01$), and an avoidance coping style was significantly associated with an avoidance coping response ($p < .01$). That is, individuals with a greater approach coping style score were more likely to use an approach strategy while those with a greater avoidance coping style score were more likely to use an avoidance strategy.

When ordering of the personal dispositions and the situational appraisals was reversed in the second regression model, similar findings were produced. While controlling for the effects of the situational appraisal variables, the personal dispositions accounted for 21% ($p < .01$) of the deviance beyond that accounted for by the situational appraisals (5%, $p > .05$). Once again, the only two variables that significantly predicted coping responses were an approach coping style and an avoidance coping style.

Table 18

Logistic Regression Analyses Predicting Type of Coping From Personal Dispositions and Situational Appraisals in Response to the Situation, "Receiving Physical Abuse From an Opponent" (n = 84)

	Model 1		Model 2		Model 3
Predictor	Step 1	Step 2	Step 1	Step 2	
Personal Dispositions					
Approach	-1.79***	-1.78***		-1.78***	-1.79***
Avoidance	1.06***	1.10***		1.10***	1.14***
Internal control	.08	.08		.08	.09*
Self-Esteem	.04	.05		.05	
Monitoring	.10	.05		.05	
Blunting	.01	.01		.01	
Situational Appraisals					
Stress intensity		.10	-.11	.10	
Perceived challenge		-.29	-.40	-.29	
Perceived threat		.25	.15	.25	.29
Perceived control		.01	-.26	.01	
R^2	.25***	.26***	.05	.26***	.25***
R^2 increment after step 2		.01		.21†††	
Model chi-square	25.21***	26.67***	4.97	26.67***	25.39***

Note. All entries are regression coefficients (β). A positive coefficient indicates an increased probability of using an avoidance strategy. A negative coefficient indicates an increased probability of using an approach strategy.

* $p < .10$, ** $p < .05$, *** $p < .01$; † $p < .10$, †† $p < .05$, ††† $p < .01$ (significant increment in R^2).

Together, these first two regression models indicated that irrespective of the order of entry of the personal and situational variables in the regression, personal dispositions were better predictors of situational coping responses than situational appraisals for the situation, "Physical Abuse." Also, personal dispositions and situational appraisals appear to be unrelated.

Finally, a stepwise logistic regression analysis was performed. Four independent variables were included in the final model. An approach coping style ($p < .01$) and an avoidance coping style ($p < .01$) were the significant predictors of situational coping responses, with internal control beliefs ($p < .10$) having a weak influence. Perceived threat was also in the model. Specifically, an avoidance coping style was associated with an avoidance coping response, and an approach coping style was associated with an approach coping response. This model accounted for 25% of the deviance compared with 26% when all of the personal and situational variables were contained in the regression. It confirmed that almost all of the deviance accounted for in predicting coping was due to the effects of personal dispositions.

Situation 2: Receiving What I Thought Was a "Bad" Call From the Referee

Diagnostics for collinearity among the personal and situational variables indicated no evidence of multicollinearity with the highest correlation being .41 between perceived challenge and stress intensity. However, an analysis of the residuals detected three outliers. These were removed from further analyses leaving a sample of 83 subjects for regression analyses. Results from the three regressions are presented in Table 19.

In the first logistic regression model the personal dispositions were entered first, followed by the situational appraisal variables. The personal and situational variables combined explained 19% of the deviance. While the situational appraisals added only 2% unique deviance ($p > .05$), the personal dispositions accounted for 17% of the deviance ($p < .01$). Only two personal disposition variables emerged as significant predictors of situational coping responses when all of the variables were in the model. An approach coping style was significantly associated with an approach coping response ($p < .01$),

Table 19

Logistic Regression Analyses Predicting Type of Coping From Personal Dispositions and Situational Appraisals in Response to the Situation, "Receiving What I Thought Was a Bad Call From the Referee" (n = 83)

	Model 1		Model 2		Model 3
Predictor	Step 1	Step 2	Step 1	Step 2	
Personal Dispositions					
Approach	-1.27***	-1.24***		-1.24***	-1.21***
Avoidance	1.52***	1.47***		1.47***	1.61***
Internal control	.02	.03		.03	
Self-Esteem	.02	.03		.03	
Monitoring	.15	.18		.18	.12
Blunting	.07	.06		.06	
Situational Appraisals					
Stress intensity		-.28	-.17	-.28	
Perceived challenge		-.15	-.26	-.15	
Perceived threat		-.04	-.10	-.04	
Perceived control		.14	-.05	.14	
R^2	.17***	.19***	.03	.19***	.16***
R^2 increment after step 2		.02		.16†††	
Model chi-square	18.79***	20.77***	3.35	20.77***	17.69***

Note. All entries are regression coefficients (β). A positive coefficient indicates an increased probability of using an avoidance strategy. A negative coefficient indicates an increased probability of using an approach strategy.

* $p < .10$, ** $p < .05$, *** $p < .01$; † $p < .10$, †† $p < .05$, ††† $p < .01$ (significant increment in R^2).

and an avoidance coping style was significantly associated with an avoidance coping response ($p < .01$). That is, players with a greater approach coping style score were more likely to use an approach strategy while those with a greater avoidance coping style score were more likely to use an avoidance strategy.

Similar findings were produced when the ordering of the personal dispositions and the situational appraisals was reversed in the second regression model. After controlling for the effects of the situational appraisal variables, the personal dispositions accounted for 16% ($p < .01$) of the deviance beyond that accounted for by the situational appraisals (3%, $p > .05$). As before, approach and avoidance coping styles were the only two variables that significantly predicted coping responses. These findings suggest that irrespective of the order of entry of the personal and situational variables in the regression, personal dispositions, compared to situational appraisals, were better predictors of situational coping responses than situational appraisals for the situation, "A Bad Call." Similar to the situation, "Physical Abuse," personal and situational variables for the present situation do not appear to be related.

Three independent variables were included in the stepwise logistic regression model. An approach coping style ($p < .01$) and an avoidance coping style ($p < .01$) were the significant predictors of situational coping responses, with monitoring also in the model. Specifically, an avoidance coping style was associated with an avoidance coping response, and an approach coping style was associated with an approach coping response. This model accounted for 16% of the deviance compared with 19% when all of the personal and situational variables were contained in the regression. Similar to the previous stressor, it confirmed that personal dispositions contributed almost all of the deviance in predicting coping responses for the situation, "Physical Abuse."

Situation 3: Missing an "Easy" Basket

Diagnostics for collinearity among the personal and situational variables was performed and an analysis of the residuals was conducted to determine if the assumptions underlying the regression model were violated. The highest correlation among the personal and

situational variables was between perceived threat and stress intensity (r = .43), thus indicating no evidence of multicollinearity. A sample of 83 subjects was used for regression analyses after residual analyses found three outliers.

As Table 20 indicates, both the personal and situational variables together explained 54% of the deviance. The personal dispositions accounted for 27% of the deviance ($p <$ .01), as did the situational appraisals (27%, $p <$ .01). When all of the variables were in the model, three personal disposition variables and three situational appraisals emerged as significant predictors of situational coping responses. Specifically, an approach coping style ($p <$ .01), self-esteem ($p <$ .05), and stress intensity ($p <$ .01) were all associated with an approach coping response, whereas an avoidance coping style ($p <$ .05), perceived threat ($p <$ .05), and perceived control ($p <$ .05), were associated with an avoidance coping response. Monitoring was weakly associated with an approach coping response ($p <$ .10). Thus, players with either a greater approach coping style score, higher self-esteem, or who perceived the situation as highly stressful were more likely to use an approach strategy. Players who possessed a greater avoidance coping style score or who perceived the situation as either controllable or threatening, on the other hand, were more likely to use an avoidance strategy.

In the second regression model, similar findings were produced. Once the effects of the situational appraisal variables were controlled, the personal dispositions accounted for 32% ($p <$.01) of the deviance beyond that accounted for by the situational appraisals (22%, $p <$ .01). It should be noted, however, that there was evidence that the effects of a few variables were mediated through their association with the opposing set of predictors. Self-esteem emerged as a significant predictor only after the situational appraisals were entered into the first regression model. In contrast, perceived threat and perceived control showed evidence as significant predictors only after the personal dispositions had been entered into the second model. These interactions suggest that some level of interaction existed between the personal dispositions and the situational appraisals. Nevertheless, together, these first two regression models indicate that for the situation, "Missing an Easy Basket," each set of predictors accounted for a significant increment of deviance in

Table 20

Logistic Regression Analyses Predicting Type of Coping From Personal Dispositions and Situational Appraisals in Response to the Situation, "Missing an Easy Basket" (n = 83)

	Model 1		Model 2		Model 3
Predictor	Step 1	Step 2	Step 1	Step 2	
Personal Dispositions					
Approach	-1.29***	-2.28***		-2.28***	-2.18***
Avoidance	1.01**	1.38**		1.38**	1.26**
Internal control	-.03	-.10		-.10	-.10
Self-Esteem	-.01	-.24**		-.24**	-.21*
Monitoring	-.27**	-.39*		-.39*	-.27
Blunting	.05	-.18		-.18	
Situational Appraisals					
Stress intensity		-2.68***	-1.34***	-2.68***	-2.39***
Perceived challenge		.26	.14	.26	
Perceived threat		1.10**	.32	1.10**	1.03***
Perceived control		.92**	-.09	.92**	.81*
R^2	.27***	.54***	.22	.54***	.53***
R^2 increment after step 2		.27†††		.32†††	
Model chi-square	23.68***	48.13***	19.89***	48.13***	46.76***

Note. All entries are regression coefficients (β). A positive coefficient indicates an increased probability of using an avoidance strategy. A negative coefficient indicates an increased probability of using an approach strategy.

* $p < .10$, ** $p < .05$, *** $p < .01$; † $p < .10$, †† $p < .05$, ††† $p < .01$ (significant increment in R^2).

explaining situational coping, with personal dispositions tending to be the slightly better predictors.

The stepwise logistic regression model contained eight independent variables. An approach coping style ($p < .01$), an avoidance coping style ($p < .05$), stress intensity ($p < .01$), and perceived threat ($p < .01$) were the significant predictors of situational coping responses, with self-esteem ($p < .10$) and perceived control ($p < .10$) exerting weak influences. Internal control beliefs and monitoring completed the model. Specifically, an avoidance coping style and perceived threat were significantly associated with an avoidance coping response, whereas an approach coping style and stress intensity were significantly associated with an approach coping response. This model accounted for 53% of the deviance compared with 54% when all of the personal and situational variables were contained in the regression. It confirmed that each set of predictors accounted for a significant proportion of unique deviance in the prediction of coping.

Situation 4: Losing Possession of the Ball to an Opponent

No evidence of multicollinearity was found with the highest correlation being .56 between perceived threat and stress intensity. However, four outliers were detected. These were removed from further analyses leaving a sample of 82 subjects for regression analyses.

In the first logistic regression model the personal dispositions and the situational appraisal variables together explained 34% of the deviance (see Table 21). The personal dispositions accounted for 21% of the deviance ($p < .01$), whereas situational appraisals added 13% unique deviance ($p < .05$). When all of the variables were in the model, two personal disposition variables and one situational appraisal variable emerged as significant predictors of situational coping responses. Specifically, an approach coping style ($p < .05$) was associated with an approach coping response, whereas an avoidance coping style ($p < .05$) and perceived control ($p < .05$) were associated with an avoidance coping response. Weak effects were demonstrated by internal control beliefs ($p < .10$) upon approach coping. Thus, players who possessed a greater approach coping style score

Table 21

Logistic Regression Analyses Predicting Type of Coping From Personal Dispositions and Situational Appraisals in Response to the Situation, "Losing Possession of the Ball to an Opponent" (n = 82)

	Model 1		Model 2		Model 3
Predictor	Step 1	Step 2	Step 1	Step 2	
Personal Dispositions					
Approach	-.96**	-1.34***		-1.34***	-1.37**
Avoidance	1.47***	1.60**		1.60**	1.08**
Internal control	-.05	-.11*		-.11*	
Self-Esteem	.05	.08		.08	
Monitoring	-.13	-.22		-.22	
Blunting	-.07	-.13		-.13	
Situational Appraisals					
Stress intensity		-1.20	-.76	-1.20	-.53
Perceived challenge		.70	-.70*	.70	-.55
Perceived threat		.82	.04	.82	
Perceived control		.86**	.31	.86**	.59*
R^2	.21***	.34***	.17***	.34***	.27***
R^2 increment after step 2		.13††		.17†††	
Model chi-square	15.33**	24.21***	11.98***	24.21***	19.75***

Note. All entries are regression coefficients (β). A positive coefficient indicates an increased probability of using an avoidance strategy. A negative coefficient indicates an increased probability of using an approach strategy.

* $p < .10$, ** $p < .05$, *** $p < .01$; † $p < .10$, †† $p < .05$, ††† $p < .01$ (significant increment in R^2).

were more likely to use an approach coping strategy, whereas players with a greater avoidance coping style score or who perceived the situation as controllable were more likely to use an avoidance coping strategy.

To examine the extent to which situational appraisals, as compared to personal dispositions, predicted situational coping responses, the second regression model was performed; situational appraisals were entered first followed by personal dispositions. Results indicated that personal dispositions and situational appraisals each accounted for 17% of the deviance ($p < .01$). As with the stressor, "Missing an Easy Basket," there was evidence that some level of interaction existed between the personal and situational variables. Internal control beliefs exerted weak effects upon coping only after the situational appraisals were entered into the first regression model. On the other hand, the personal dispositions had to be entered into the second model before perceived control became a significant predictor of coping. These two regression models indicated that the personal dispositions and the situational appraisals accounted for a significant increment of deviance in explaining situational coping, with personal dispositions tending to be the better predictors.

Five of the 10 independent variables were included in the stepwise logistic regression model. An approach coping style ($p < .05$) and an avoidance coping style ($p < .05$) were the significant predictors of situational coping responses, with perceived control ($p < .10$) exerting a weak influence. Perceived challenge and stress intensity were also in the model. Specifically, an avoidance coping style was significantly associated with an avoidance coping response, whereas an approach coping style was significantly associated with an approach coping response. This model accounted for 27% of the deviance compared with 34% when all of the personal and situational variables were contained in the regression. This model indicated that the situational appraisals of perceived challenge and stress intensity, although nonsignificant, contributed to the prediction of coping.

Discussion

The present study examined the effects of both personal dispositions and situational appraisals on coping strategies of basketball players. A second aim was to investigate whether there would be evidence of cross-situational consistency (across four different acute stress situations) in the use of similar coping responses. The final aim of the present study was to examine selected relationships among the personal dispositions and among the situational appraisals. Several hypotheses were generated from these aims. Specifically, it was anticipated that a player's coping responses would depend more on situational than on personal variables, and that players would vary their coping responses across situations. Associations were also expected between players' personal dispositions and their coping style. Results were mixed concerning these hypotheses. This section will address these hypotheses by considering all four situations collectively.

Cross-Situational Consistency of Coping Responses

It was hypothesised that players would vary their coping responses across situations. It was further hypothesised that situational coping responses would be influenced more by situational appraisals than by personal dispositions. As previously described, the first hypothesis was examined using a multiway frequency analysis to look for associations among the basketball players' coping responses across the four acute stress situations. This analysis produced some evidence for cross-situational stability of approach coping. More specifically, a model was found which revealed two significant two-way associations between situations. Of the players who used approach coping in response to the situation, "A Bad Call," 87% used approach coping after "Physical Abuse." Also, of the players who used approach coping after "Losing the Ball," 83% used the same form of coping after "Missing an Easy Basket." At first glance these results seem to contradict initial predictions, although only 31% of players used approach coping over the first two situations. Overall figures were greater for the second pair of

situations, however, with 65% of players using approach coping across these situations. No evidence was found for cross-situational stability of avoidance coping. These results are consistent with studies that have found individuals using consistent coping patterns across certain situations (Compas et al., 1988; Fleishman, 1984; Folkman et al., 1986a; Kaissidis, 1993; Larsson et al., 1988; Patterson et al., 1990).

Studies by Larsson et al. (1988) and Kaissidis (1993) seem particularly relevant to the results found here. Examining the appraisals and coping processes of police officers, Larsson and his colleagues reported high levels of consistency of secondary appraisals and coping strategies across a range of acute stress situations. The researchers attributed these results to uniform training and work socialisation practices inherent in the police force. Similar interpretations were made by Kaissidis with basketball referees. The preponderance of basketball players utilising approach coping responses in the present study might, therefore, be due to competition practices imbedded within the context of sport. As researchers in sport psychology have shown, ability, effort, and resolve, are perceived as the dominant causes of successful performance in sport (Bukowski & Moore, 1980; Roberts & Pascuzzi, 1979). These attributes are most often associated with competitors attempting to understand and master problems encountered during competition.

Evidence for cross-situational consistency in coping was restricted to certain situations. While some evidence of coping stability was recorded across the situations, "Physical Abuse," and "A Bad Call," the strongest evidence was across the final two situations, "Missing an Easy Basket," and "Losing the Ball." Researchers have suggested that when attempting to understand consistency in coping, one should consider the following factors: (a) the demands imposed upon the individual by the stressful situation (Compas et al., 1988; Folkman et al., 1986a; Terry, 1994), and (b) how the situation was appraised by the individual (Bouffard & Crocker, 1992; Compas et al., 1988; Terry, 1991). Applying these guidelines to the players' situational appraisals for each of the acute stress situations, it is possible that the consistency in players' approach coping responses across the first two situations was due to the similarities in stressor

demands and stress intensity. Both "Physical Abuse," and "A Bad Call," were situations perceived as being equally stressful. Also, these situations were initiated by individuals other than the player concerned and were provocative in nature. Consequently, in order to control the situation, players may have implemented approach coping efforts to regulate their feelings of frustration (Larsson et al., 1988). The final two stressful situations, "Missing an Easy Basket," and "Losing the Ball," were both characterised by similar perceptions of stress intensity, threat, and controllability. These situations could be described as unforced errors in that the athlete was directly responsible for their occurrence. As noted before, the strong tendency for players to use approach coping responses across these situations is typical of athletes trying to succeed in sport by learning from their errors.

The second hypothesis, which contained two parts, was concerned with the contribution of personal dispositions and situational appraisals influencing situational coping responses. On the basis of studies investigating these effects, it was hypothesised that both personal and situational variables would significantly predict coping responses (Holahan & Moos, 1987; Kaissidis, 1993; Parkes, 1984; Terry, 1991, 1994). It was also hypothesised that situational appraisals would emerge as a more important predictor of coping responses than personal dispositions. Logistic regression models were used to test these hypotheses by assessing how the independent variables related to the dichotomous dependent variable, an approach or avoidance coping response. Separate models were performed for each source of acute stress. Results partially supported these hypotheses.

Specifically, personal dispositions made a significant incremental contribution to predicting basketball players' situational coping responses in each acute stressful situation. In fact, the only personal disposition variables to emerge as significant predictors in each of the four situations were the players' approach and avoidance coping styles. Moreover, in response to the situations, "Physical Abuse," and "A Bad Call," these coping style variables were the only variables to significantly effect one's choice of coping strategy. For the situation, "Missing an Easy Basket," self-esteem was an

additional significant disposition variable, whereas internal control beliefs exerted a weak influence upon coping in response to "Losing the Ball." In both cases, these two variables were related to approach coping.

Situational appraisals significantly influenced coping responses in the following situations, "Missing an Easy Basket," and "Losing the Ball." For the first of these situations, individuals who were highly stressed favoured the use of approach coping, while those who felt highly threatened or who perceived the situation as highly controllable preferred avoidance coping. For the second situation, only one situational appraisal variable emerged as a predictor of coping. Athletes relied on avoidance coping when they perceived the situation, "Losing the Ball," to be highly controllable.

The proportions of deviance that the personal dispositional variables and the situational appraisal variables accounted for in the prediction of coping responses differed depending on the situation. For the two situations, "Physical Abuse," and "A Bad Call," the amount of deviance contributing to the prediction of coping by each of the set of predictors remained constant irrespective of the order in which the personal and situational variables were entered into the regression models, thus providing support for the additive model of coping. According to this model, personal and situational variables are unrelated and influence coping responses independently (Terry, 1991).

For the remaining situations, "Missing an Easy Basket," and "Losing the Ball," the contribution of the personal dispositions and situational appraisals was found to change as a function of their order of entry into the regression models. This suggested that some level of interaction existed between the personal factors and the situational factors. Specifically, in response to "Missing an Easy Basket," perceived threat and perceived control significantly predicted coping only after the personal dispositions had been included in the regression model, whereas the situational appraisals had to be entered into the model before self-esteem showed evidence as a predictor. Similarly, perceived control became a significant predictor once the personal dispositions were included in the model for the situation, "Losing the Ball." Then, when situational appraisals were entered into the regression model, internal control beliefs was revealed as a weak

predictor of coping. Thus, for these two situations, there is evidence to support the interactive model where coping is a function of the interplay between personal and situational variables (Parkes, 1986). Other studies have examined both additive and interactive models (e.g., Aldwin & Revenson, 1987; Kaissidis, 1993; Parkes, 1986).

Parkes (1986), for example, reported that personal, situational, and environmental variables had additive and interactive effects on coping depending on the mode of coping examined. Direct coping and suppression were predicted by an interactive model, whereas general coping was determined by an additive model. Kaissidis (1993) also found support for both of these models when he conducted separate studies with basketball referees and players. Results suggested that for basketball officials the interaction between personal dispositions and situational appraisals determined coping responses (i.e., interactive model), whereas these variables directly influenced coping for competitors. Kaissidis concluded that the type of population investigated determined which model of coping was operative. However, in the present study, the contribution of personal and situational variables in predicting coping was examined for each of four separate situations rather than across either different populations or different modes of coping. In this case, the situation appeared to dictate which model of coping was operative.

Evidence for the situational and transactional models of stress and coping was also investigated. This was done by examining the contribution of the personal dispositions and the situational appraisals in predicting coping when both of these sets of variables were contained in the regression models. Support was found for both the situational and the transactional models. In response to the situations, "Physical Abuse," and "A Bad Call," personal dispositions accounted for a significant proportion of the deviance in the prediction of coping while situational appraisals played very little part in influencing coping responses, thus highlighting the importance of the situation in coping (Parkes, 1986). On the other hand, for the situations, "Missing an Easy Basket," and "Losing the Ball," a player's dispositional characteristics and situational appraisals significantly predicted his coping responses. Further, each set of variables accounted for similar

proportions of deviance, although personal dispositions did appear to be more influential than situational appraisals once the order of entry into the regression models had been reversed. Thus, for these two situations, a transactional approach is supported where a player's disposition and situational appraisals combine to affect his method of coping (Lazarus & Folkman, 1984). In addition to finding support for the situational and transactional models of stress and coping, these results contradicted the hypothesis that situational appraisals would be better predictors of coping than personal dispositions. Instead, they reflect a growing body of research claiming that too much emphasis has been given to the role of situational variables in coping (Ben-Porath & Tellegen, 1990; Krohne, 1990; Moos & Swindle, 1990; Terry, 1991, 1994).

Recent studies by Terry (1991, 1994) revealed consistent support for the importance of personal dispositions on coping responses. In both studies she reported that stable variables accounted for greater proportions of variance than situational appraisals in predicting coping. Further, in her earlier study, Terry (1991) noted how little variance had been accounted for by both personal and situational variables, an observation which, subsequently, led her to admit that other variables such as coping styles must be important determinants of coping. Certainly, in the present study, coping styles played an integral role in predicting situational coping responses across a range of situations.

Basketball players' personal dispositions were particularly instrumental in determining whether they would use an approach or avoidance coping strategy when responding to the situations, "Physical Abuse," and "A Bad Call." Perhaps, the provocative nature of these situations restricts the options available to the targeted athlete and demands that a particular form of coping be used, irrespective of the prevailing circumstances in the contest. Results by Parkes (1986) support this proposal. In her study, objective characteristics of the event rather than situational appraisals predicted the use of certain coping responses. In contrast, after either of the following situations, "Missing an Easy Basket," and "Losing the Ball" (situations characterised by increased perceptions of controllability), the athlete's need to learn from the situation so as to reduce

the likelihood of similar errors in the future may have compelled him to consider situational factors carefully before responding. In this respect, there is considerable evidence showing that the use of problem-focused coping varies as a function of the appraised controllability of the event (e.g., Carver et al., 1989; Folkman & Lazarus, 1980; Terry, 1994).

In summary, these findings suggest that both personal dispositions and situational appraisals should be taken into account when attempting to identify how athletes cope with stressful situations in sport (Moos & Swindle, 1990). Findings also show that coping responses to sources of acute stress are very much dependent on an individual's coping style as well as the demands of the event providing support for a situational approach to coping. In contrast, some evidence was also found for a transactional model of coping that emphasises the combined effects of situational appraisals and personal dispositions in determining coping responses. Finally, there was some evidence of cross-situational consistency in approach coping possibly due to similarities in coping demands and appraisals. To gain a greater understanding of the coping strategies that an athlete chooses to adopt in a particular acute stressful encounter future research needs to examine the role that other situational appraisals play and how "coping varies as a function of similarity between events on more objective measures of situational demands (such as judgements of event controllability)" (Terry, 1994, p. 907).

Predictors of Situational Coping

Several hypotheses were generated in which relationships between personal dispositions, situational appraisals, and situational coping responses were predicted. These hypotheses were tested by constructing logistic regression models containing all of the personal and situational variables. With respect to relationships between personal dispositions and situational coping responses, it was hypothesised that a person's enduring approach-avoidance coping style, as measured by the CSBI, would significantly predict coping responses. The present study supported this hypothesis for each of the

four stressful situations. Specifically, players possessing greater approach coping style scores used an approach coping response, whereas players with greater avoidance coping style scores used an avoidance coping response.

These findings are consistent with recent studies investigating the effects of an individual's coping style on specific coping responses (Carver & Scheier, 1994; Carver et al., 1989). Using their measure of coping, the COPE, which assesses both dispositional and situational coping, Carver and his colleagues have investigated this issue with some success reporting moderate correlations between the COPE's dispositional coping dimensions and situational coping tendencies. Earlier, Stone et al. (1991) claimed that the relatively poor predictive power of previous coping instruments had arisen from: (1) the inapplicability of coping items to different kinds of stressful events, (2) the different stages of the stressful event for which coping had been reported, and (3) confusion over the "extent" response key used when reporting coping efforts. The coping questionnaire used in the present study, the CSBI, addressed these methodological concerns by having players report situation-specific coping efforts in response to specific sources of acute stress. This may help explain the strength of the present findings. Future research could benefit by following such an approach (see also Krohne, 1989, and Miller, 1987).

With regard to relationships between situational appraisals and situational coping responses, it was hypothesised that perceived stress would predict approach coping. This hypothesis was based on findings indicating that in certain contexts highly stressed individuals are more likely to utilise approach strategies than avoidance strategies (Fleishman, 1984; Kaissidis, 1993; Madden et al., 1989, 1990; Terry, 1991). For example, Madden et al. (1989) found that increased effort and resolve, problem-focused coping, and seeking social support were used consistently as strategies for coping with a slump in personal performance in competitive running. Similar results were obtained in a study with basketball players (Madden et al., 1990). Results of the present study only confirmed this prediction for the situation, "Missing an Easy Basket."

Apart from the possibility that the measure of stress might have been too general a measure to significantly predict coping responses in the other acute stress situations

(Terry, 1994), the most likely explanation for the lack of effects for the other three situations concerns the nature of the event. It has become apparent that certain situations demand certain forms of coping (Fleishman, 1984; Folkman & Lazarus, 1980; Holahan & Moos, 1987; Terry, 1994). For example, in a study examining the coping patterns of people in stressful life circumstances, Fleishman noticed that the role area being studied dictated what coping strategies people chose to use. Similarly, in sport, characteristics of the stressor such as the amount of effort needed to cope successfully and the expectations of others upon a player to resolve the aversive experience, may play a part in determining the strategies an athlete should adopt. In this respect "Physical Abuse," and "A Bad Call," may represent situations in basketball which demand that players respond in a particular way, irrespective of the situational appraisals they may make (as indicated by the logistic regressions). Limited controllability over these stressors and the need to quickly refocus rather than become involved in verbal exchanges and physical taunts with an opponent or futile dialogue with a referee, might mean that the player's coping style is the most influential factor in choosing an efficacious coping response in certain situations. However, as anticipated, after "Missing an Easy Basket," approach coping was significantly associated with high perceived stress. It is more difficult to interpret why highly stressed players chose not to use approach coping strategies after "Losing the Ball," given the similarity between this stressor and the previous one on situational appraisals of perceived stress, threat, and control. While not a significant predictor, a stepwise logistic regression model did indicate that perceived stress had some influence in predicting coping responses for the situation, "Losing the Ball." The apparent inconsistency of these results are reflected in the mixed findings of past research where some studies have observed effects of stress intensity on coping (e.g., Anderson, 1977; Parkes, 1986; Terry, 1991), and others have shown no effects (e.g., Billings & Moos, 1981; Mattlin et al., 1990; Terry, 1994).

It was also hypothesised that perceived challenge would predict approach coping whereas perceived threat would predict avoidance coping. Little support was found for these hypotheses across the four situations. Specifically, after "Missing an Easy Basket,"

avoidance coping was associated with high perceived threat. Also, high perceived challenge was weakly associated with approach coping for the situation "Losing the Ball," although this effect was lost once the stable influences on coping were controlled. The lack of consistent relationships between primary appraisals and coping across these two situations is comparable to results from a study of students undertaking an exam (Carver & Scheier, 1994). Carver and Scheier found that students who felt threatened used mental disengagement strategies but no association was evident between perceptions of challenge and coping. They suggested that feelings of challenge might be far less responsive to coping than feelings of threat. In terms of the present study, this interpretation could imply that certain forms of coping are sometimes used, irrespective of the challenge appraisals made. To clarify this, future studies need to identify situations that are universally regarded as stressful for individuals.

Another explanation for the inconsistent relationships between perceptions of challenge and threat and coping might involve the difficulty of measuring primary appraisals in response to acute stress. As Larsson et al. (1988) noted, "The cognitive appraisal process is often difficult to observe empirically because the individual may be unaware of any or all of the basic elements of an appraisal" (p. 262). Allowances were made for this difficulty in the present study by providing athletes with a range of emotion descriptors reflecting challenge and threat appraisals (Carver & Scheier, 1994; Folkman & Lazarus, 1985; Larsson et al., 1988), however, athletes may still have experienced difficulty distinguishing past emotions from present emotions. The challenge for researchers in the sport psychology field will be to develop data collection methods that can accurately capture the fluctuating nature of emotions resulting from acute stressors.

The final hypothesis within this section addressed the effects of secondary appraisals on coping. It was hypothesised that peceived controllability would predict approach coping. This hypothesis was not confirmed. This variable had no effects on coping for two of the situations; however, for the situations, "Missing an Easy Basket," and "Losing the Ball," perceived controllability significantly predicted the use of avoidance coping. These results appear to be consistent with the positive associations

recorded between stress intensity and perceptions of control, and might suggest that when an athlete is faced with numerous coping options in acute time-limited situations, feelings of distress may result. There is evidence showing that having control over a situation can be stress-inducing when it conflicts with an individual's values and commitments (e.g., Averill, 1973; Folkman, 1984), or is antagonistic to a preferred coping style (e.g., Martelli et al., 1987; Miller & Mangan, 1983). In the present study, athletes may have been using coping strategies that were either inappropriate for the situation or which opposed their preferred style of coping. Miller (1989) recommended that the best way to resolve this issue would be to conduct comprehensive investigations of the determinants of coping with specific stressors.

In summary, the strength of the relationship between coping styles and situational coping responses suggests that this is an area deserving of further attention. These results suggest that measuring an athlete's coping style could be a valuable component of a routine assessment prior to participation in specific stress management interventions. Results also emphasise the importance of detecting specific characteristics of events and how athletes appraise them, for these are prerequisites for gaining a clearer picture of what situational variables influence coping (Carver et al., 1989; Holahan & Moos, 1987; Parkes, 1986; Terry, 1991, 1994).

Relationships Within Sets of Variables Predicting Situational Coping

Another objective of this study was to investigate several hypotheses pertaining to various relationships between personal dispositions and between situational appraisals. Intercorrelations were conducted to test these hypotheses. Partial support was found for these hypotheses. In terms of relationships between personal dispositions, it was anticipated that high internal control beliefs and self-esteem would be positively related to an approach coping style, and negatively related to an avoidance coping style. These hypotheses were based on consistent evidence that individuals with internal control beliefs use more problem-focused coping and less emotion-focused coping than persons

with external control beliefs (Terry, 1994), and that individuals with high self-esteem rely more on problem-focused coping and less on avoidance-type strategies than people with low self-esteem (Fleishman, 1984; Holahan & Moos, 1987). These results from the literature are based on two premises. First, individuals with high internal control beliefs usually contend that their own efforts will be effective in resolving stressful situations. Second, high self-esteem individuals are likely to have confidence in their ability to deal effectively with problems (Lazarus & Folkman, 1984). The results of the present study, however, only partially supported previous research. Specifically, internal control beliefs was positively correlated with an avoidance coping style for the situations, "Physical Abuse," and "A Bad Call." In contrast, internal control beliefs was positively correlated with an approach coping style for the situations, "Missing an Easy Basket," and "Losing the Ball." No correlations existed between an approach coping style and self-esteem.

Similar results were reported by Kaissidis (1993) with basketball referees. He found that self-esteem was positively correlated with an avoidance coping style. Like Kaissidis, the present study examined coping in response to sources of acute stress as opposed to most past related studies in the sport psychology literature that have focused on chronic stressors. This might suggest that the inconsistency between these results and previous research is due to the differences in the populations studied and the immediacy of coping efforts. It is possible that in certain sport situations it actually requires higher levels of self-esteem and internal control beliefs to use avoidance coping thereby walking away from an imminent confrontation. For example, after experiencing "Physical Abuse," self-defence and restoration of the athlete's cognitive and emotional readiness often prompt immediate retaliation. Similarly, after receiving a questionable ruling ("A Bad Call") an athlete usually confronts the referee as he or she feels compelled to understand the error. In both of these cases, however, the more appropriate behaviour may involve ignoring or reappraising the incident and remaining focused on one's task in the game (Anshel, 1990c). Similarly, as Folkman et al. (1986a) contend; "Whether or not a coping strategy results in positive outcomes depends on the demands and constraints of the context in which it is being used and the skill with which it is applied"

(p. 1001).

It was also hypothesised that monitoring and blunting would be positively related with approach and avoidance coping styles, respectively. Evidence was found for this hypothesis, but only for the two situations, "Missing an Easy Basket," and "Losing the Ball." These findings were not entirely unexpected given some of the recent research findings. Carver et al. (1989) found the COPE's scales to be relatively unrelated to monitoring and blunting, and Miller (1990) reported the MBSS to be unrelated to a variety of trait measures. It is possible, therefore, that Miller's MBSS is not a valid measure for competitive athletes.

Other significant correlations were recorded within the personal dispositions. First, monitoring was negatively related to blunting, a finding that Miller (1990) often reported and believed was consistent with the orthogonal nature of the two measures. Similarly, Roth and Cohen (1986) contended that the dimensions of approach and avoidance coping should be considered independent. This was confirmed in the present study with the CSBI's approach and avoidance coping measures being unrelated to each other across most of the acute stress situations. Second, internal control beliefs were significantly related to self-esteem. This result is comparable with other research findings (Terry, 1991, 1994) and is not surprising given the similar conceptual basis of these two measures. Individuals possessing internal control beliefs tend to believe that their actions influence outcomes, while high self-esteem individuals have confidence in their ability to manage problems. Thus, the lack of consistent relationships between the internal control beliefs and self-esteem constructs and coping were unexpected, possibly the consequence of utilising non-sport specific measures.

Additional hypotheses were made with respect to relationships between situational appraisals. It was hypothesised that stress intensity would be negatively correlated with perceived control. This hypothesis was based on the assumption that stress-reductive effects are associated with the perception of control in a situation. In sport, Madden et al. (1990) noted that basketball players found situations in which others were in control to be highly stressful. However, the converse was found for three of the situations in the

present study, that is, stress intensity was positively related to perceived control. It should be noted, however, that these associations, while significant, were quite low (*rs* ranged from .16 to .19). Also, the players reported that they found the remaining situation, "A Bad Call," to be both the least stressful and the least controllable situation. Perhaps, basketball players recognised the futility of arguing with the referee, as generally, a referee will not rescind or reverse a decision. This accords with Litt's (1988) assertion that believing that an event is uncontrollable does not always lead to an increase in stress. Thus, it is possible that in certain sporting situations having control may induce stress whereas having little control reduces stress. Obviously, the relationship between controllability and stress is very complex and, perhaps, will only be resolved by investigating coping processes in relation to specific situations and by determining the degree to which these stressors allow for controllability or are perceived as such (Auerbach, 1989).

It was also hypothesised that perceived controllability would be positively related to challenge perceptions and negatively related to threat perceptions. Folkman (1984) proposed these relationships in her theoretical analysis of personal control and coping processes. Little research has been conducted exploring the effects of situational control appraisals on primary appraisals of threat and challenge. In their study of emotions and coping during different stages of a college exam, Folkman and Lazarus (1985) predicted that when feelings of control were high students should experience an increased intensity of positive emotions (challenge) and negative emotions (threat) when feelings of control were low. They found partial support for their hypotheses. Feeling in control was correlated with challenge emotions, but not negatively correlated with threat emotions as expected. The researchers suggested that the exam's outcome may not have posed a very significant threat to the personal stakes of the subjects. In the present study, similar findings emerged.

Specifically, a significant correlation was found between perceived controllability and challenge perceptions for the situations, "Missing an Easy Basket," and "Losing the Ball." No associations were found between perceived controllability and threat

perceptions. Perhaps, the basketball players appraised the four acute stress situations as more challenging than threatening. Indeed, the mean scores of these two primary appraisals testify that this was so. Also, both threat and challenge perceptions were significantly associated with stress intensity indicating that both of these primary appraisals occurred simultaneously. In support of this finding Folkman and Lazarus (1985) noted that it is not unusual for people to experience both threat and challenge emotions simultaneously in highly ambiguous situations. According to the authors, the best way to resolve encounters in which a person experiences contradictory primary appraisals may be to "know more about these multiple meanings, including those aspects of the encounter about which (the person feels) threatened and challenged" (Folkman & Lazarus, 1985, p. 168).

In summary, various relationships were found to be significant within each of the sets of variables predicting situational coping responses. Most noteable was the fact that certain significant relationships were restricted to certain situations. Collectively, all of the results of this study indicate that to gain a more complete understanding of the mechanisms underlying coping processes a situation-specific approach should be adopted (Carver & Scheier, 1994; Krohne, 1993; Terry, 1994).

CHAPTER FIVE

STUDY THREE

THE EFFECTIVENESS OF STRESS MANAGEMENT TRAINING ON AFFECT, SITUATIONAL APPRAISALS, AND COPING EFFICACY OF COMPETITIVE BASKETBALL PLAYERS

The primary purpose of this study was to investigate the effectiveness of a stress management training program in reducing the adverse effects of acute stress experienced by competitive basketball players. A secondary aim of the present study was to match stress management strategies with players' preferred coping styles. It was predicted that the two experimental treatment groups, compared to the placebo group, would report: (1) increased positive affect, challenge appraisals, perceived controllability, and coping efficacy, and (2) decreased negative affect and threat appraisals.

Method

Subjects

Thirty-one male basketball players, ranging in age from 16 to 25 years, participated in the study. Subjects were initially contacted via newsletters distributed at various high schools and basketball stadiums in the Illawarra region, in New South Wales. All of the subjects volunteered to participate in the investigation, and all either represented their high school or played in the B-Grade competition in the Illawarra basketball league. During the course of the study seven subjects were dismissed because of failing to attend treatment sessions or withdrawing from the program.

Prior to the commencement of the program, all of those basketball players who had contacted the researcher expressing an interest in participating in the study were instructed to complete the Coping Strategies in Basketball Inventory (CSBI). The CSBI was then sent to these players in the mail. Once completed and returned, the results of the CSBI were used to determine treatment groups.

Adopting the procedure used by Maynard and Cotton (1993), each subject's approach and avoidance scores from the CSBI were inspected for evidence of a dominant coping style. This analysis was confined to two of the four situations described in the CSBI after considering the variability of players' coping responses across the different acute stressors, as revealed in the second study. Results from Study 2 found that basketball players demonstrated the greatest cross-situational stability across the two situations, "Losing Possession of the Ball to an Opponent," and "Missing an Easy Basket." Based on this evidence, individuals who report using approach strategies to cope with both of these stressors could be assigned to an approach strategy intervention group. Consequently, only the players' coping style scores for these two situations were inspected.

Subjects were divided into high, medium, and low preference groups based on a three-way split of approach and avoidance coping style scores. If subjects indicated a high preference for approach coping strategies they were assigned to the approach strategy intervention group (n = 9), whereas subjects reporting a high preference for avoidance coping strategies were allocated to the avoidance strategy intervention group (n = 7). Subjects in which neither coping style was dominant formed the placebo-control group (n = 8). The means and standard deviations for the approach and avoidance coping style scores, in each intervention group, for each situation are presented in Table 22.

Table 22

Means and Standard Deviations for Approach Coping Style and Avoidance Coping Style in Each of the Intervention Groups

	Losing the Ball		Missing an Easy Basket	
Intervention Group	Approach Coping Mean	Avoidance Coping Mean	Approach Coping Mean	Avoidance Coping Mean
Approachers				
M	4.45	2.65	4.34	2.73
SD	(.39)	(.32)	(.41)	(.39)
Avoiders				
M	3.42	3.71	3.16	3.81
SD	(.47)	(.41)	(.38)	(.43)
Placebo-control				
M	3.44	2.53	3.39	2.61
SD	(.57)	(.32)	(.70)	(.33)

Materials

Personal Dispositions

Coping Strategies in Basketball Inventory (CSBI) Each subject's coping style was assessed using the CSBI developed in the first study. Subjects were asked to indicate the frequency with which they *usually* used specific coping strategies in response to two sources of acute stress. Each item was scored on a 5-point Likert scale ranging from 1

(not used at all) to 5 (used all the time). The CSBI has been shown to possess adequate construct and concurrent validity (see Study 2). The CSBI can be seen in Appendix C as Questionnaire 1.

Situational Variables

Positive and Negative Affect. Mackay, Cox, Burrows, and Lazzerini (1978) developed the Stress Arousal Adjective Checklist (SACL), a measure of self-reported stress and arousal. Previous research has established the stress part of this scale as a valid measure which appears to indicate the presence of fear or doubts about one's ability to cope (King, Burrows, & Stanley, 1983; Mackay et al., 1978). Accordingly, subjects' affective reactions to sources of acute stress were assessed with the 18 items comprising the stress construct of the SACL (see Appendix E, items 1, 8). This construct consisted of a 10-item negative affect subscale, and an 8-item positive affect subscale. Examples of negative affect items included "tense," "bothered," "uneasy," and "distressed," while "relaxed," "restful," "peaceful," and "cheerful" were examples of positive affect items. For each of the items respondents indicated on a 4-point response scale (++ = definitely yes, + = slightly agree, ? = not sure or don't understand, - = definitely not) how well the adjectives described the way they felt at a particular moment.

Primary Appraisal. Subjects were asked to indicate on a 5-point scale to what extent they felt challenged and threatened upon experiencing the stressful situations (1 = not at all, 5 = very much). Several emotions described each of these appraisals. The items, "pumped up," "confident," "alert," and "eager," were intended to reflect challenge appraisals (Appendix E, items 2, 9), whereas the items, "disappointed," "irritated," "uncertain," "worried," and "anxious," were used as indicators of threat appraisals (Appendix E, items 3, 10). These terms were identical to those used in other studies (Carver & Scheier, 1994; Folkman & Lazarus, 1985; Larsson et al., 1988).

Secondary Appraisal. Appraisal of perceived controllability was assessed with three items. Subjects were required to indicate on a 5-point scale the extent to which they believed that they could do something to prevent either their stressful feelings or the incident from negatively affecting their game (see Appendix E, items 4 to 6 and 11 to 13). The three items were summed to provide a single score.

Perceived Coping Efficacy. Using a rating scheme similar to those of Alwin and Revenson (1987) and Zautra and Wrabetz (1991), subjects rated on a 5-point scale how effective their coping strategy or routine had been in helping them deal with the stressful incident (see Appendix E, items 7, 14). Research has suggested that psychological adjustment following a stressful episode appears to be related to the individual's self-evaluation of his or her efforts to cope (Alwin & Revenson, 1987; Zautra & Wrabetz, 1991).

Procedures

Prior to the commencement of the intervention program, all of the basketball players who had returned the CSBI (n = 41) were requested to attend an information session. During this session players were asked to read a cover letter outlining the general purpose of the investigation and sign an informed consent form. Subjects under 18 years of age were also asked to obtain their parents' consent. Each player was then given a package containing six Game Sheets, three to be completed in response to the situation, "Losing the Ball," and three in response to the situation, "Missing an Easy Basket." Two of these sheets, that is, one for each of the two acute situations, were to be completed immediately following a basketball game. Thus, all six of the sheets were to be filled in over a three week period (i.e., three basketball games) prior to the intervention. Each sheet assessed the dependent measures including positive and negative affect, primary and secondary appraisals, and perceived coping efficacy. The Game Sheets appear in Appendix E. A similar package containing additional Game Sheets was given to players at the conclusion

of the intervention. These questionnaires provided pre- and post-intervention measures. Finally, players were asked to complete the stress scale of the SACL. This provided a rating of whether subjects were actually relaxed.

Researchers have recently questioned whether retrospective accounts are accurately measuring what individuals actually did to cope with an event (Ptacek et al., 1994). Ptacek and his colleagues recommended forewarning subjects in advance that they would be expected to monitor their own coping efforts. This advice was implemented in the present study. Thus, after each basketball game players were to recall each of the two acute stressful situations, and with these in mind, fill out the questionnaires. To gauge whether subjects were, in fact, reporting stressful incidents they were asked to complete Mackay et al.'s (1978) SACL at the first workshop when feeling relaxed and unstressed. Table 24 indicates that subjects' levels of positive affect were much less, and their levels of negative affect were much greater, when reporting game-related stressful incidents as compared with a moment of relaxation. This is important as research has suggested that stress management programs are most effective with athletes who are anxious (Burton, 1990).

The intervention program consisted of five 1-hour sessions in a group setting over five consecutive weeks. Subjects in the two experimental treatment groups received stress management training consistent with their preferred coping style, while the placebo-control group was exposed to sport psychology presentations containing material considered unrelated to anxiety reduction. The author conducted all of the workshops. At the end of each session experimental subjects were also given homework assignments and training diaries designed to facilitate adherence to the program and rehearsal of the coping skills. These were reviewed at the following session to monitor progress and check whether subjects were encountering any difficulties. At the conclusion of the intervention the subjects were given their second parcel of questionnaires. Within this parcel was the post-intervention measures as well as an evaluation questionnaire, or manipulation checks, to assess the effectiveness of particular stress management strategies. Employing manipulation checks is necessary for identifying what components

of an intervention program are contributing to changes in cognitions and performance (Greenspan & Feltz, 1989). After completing all of the questionnaires the players returned them in prepaid envelopes to the researcher.

Treatments

Experimental Groups

The content of the stress management programs provided to the experimental groups drew heavily from cognitive-affective stress management training (Smith, 1980) and stress inoculation training (Meichenbaum, 1985). Following Meichenbaum's guidelines, these programs were conceptualised in terms of three overlapping phases: (a) an educational phase during which the transactional model of stress was introduced thus providing a rationale for the coping skills presented, (b) a coping skills acquisition phase during which cognitive and behavioural coping techniques were learned, and (c) an application phase during which the coping techniques were practised. The final outcome of the two coping skills programs for the experimental subjects was the development of *The Final Coping Routine*, a specific integrated coping response which players could implement to control emotional arousal during either of the two acute stressful situations. *The Final Coping Routine* is presented schematically in Figure 2. With the exception of the self-talk component of this integrated coping response, the training procedures used to teach the other components were identical for both experimental groups.

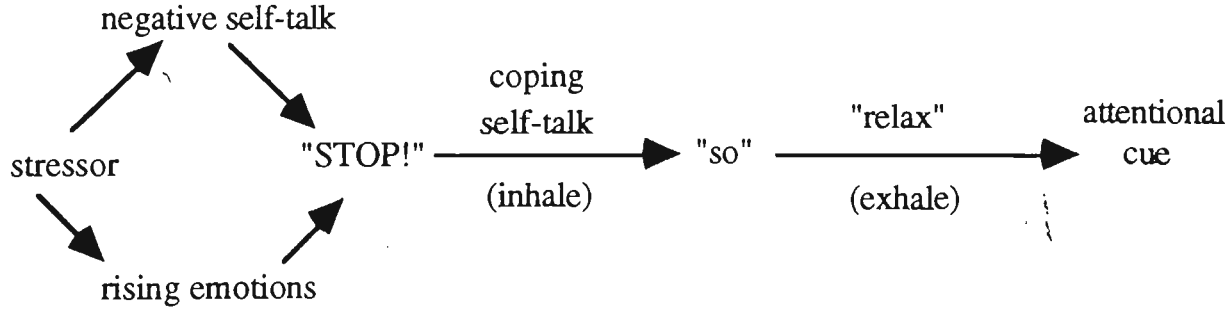

Figure 2. Schematic Representation of The Final Coping Routine.

The self-talk component represented the key coping strategy within *The Final Coping Routine* and reflected the approach-avoidance dichotomy as described by Roth and Cohen (1986). Consequently, subjects in the approach coping group were taught statements designed to focus attention on the situation that had elicited their stress response. The three types of self-talk statements employed were borrowed from Rushall (1989) and included: (a) task-relevant statements describing the technical or tactical aspects of performance which the athlete should have employed, (b) alternative strategy statements describing play options which may have been more appropriate, and (c) positive self-statements to maintain the effort of application. Subjects in the avoidance coping group, on the other hand, were taught statements which would distract them from the stressor. These statements consisted of: (a) reappraisal statements where the aversive situation is considered in a different light (Lazarus & Folkman, 1984), (b) parking statements involving decisions to forget or ignore the situations (Orlick, 1986), and (c) discounting statements where the importance of the stressor is reduced (Anshel, 1994).

These statements are discussed separately within the program for each group. Therefore, to avoid redundancy, the following description of the stress management program applies to both experimental groups. Appendix F contains all of the handouts and training diary sheets distributed to experimental subjects during the program.

Session 1. The instructor and the group members introduced themselves and discussed their perceptions of sport psychology. They were told that a significant component of sport psychology involves teaching athletes how to deal more effectively with stress experienced during competition. A list was then made on the whiteboard of incidents or times when subjects felt stressed in everyday life. Subjects were led to see that their contributions could be divided into two separate groups, those reflecting negative affect, and those associated with positive affect. Subsequently, the terms arousal and anxiety were discussed. Arousal was defined as the intensity of physiological activation which can be triggered by both fear and joy. However, fear is associated with negative affect, whereas joy is associated with positive affect. Anxiety

was defined as conscious feelings of apprehension and tension resulting from an athlete's perceptions of a situation as threatening. For the purposes of the stress management program, subjects were asked to associate the term stress with anxiety and feelings of negative affect.

Subjects were introduced to the transactional model of stress. As Smith (1980) did, players were asked a number of questions about their stress responses to help them arrive at the conceptual model on their own. Questions included, "What were the circumstances surrounding the stressful incident? What was it about the incident that stressed you? What were your thoughts like? Why were you thinking this way? How were you feeling at the time? How did you respond to the incident? What did you do?" These questions elicited descriptions of the situational, cognitive appraisal, physiological, and behavioural elements of the stress model.

To reinforce these concepts subjects were presented with Landers and Boutcher's (1986) model illustrating the arousal-performance relationship in sport. Once again, the separate components of the model were discussed, but this time with reference to sporting situations. A brainstorming activity followed where subjects recounted acute stress incidents that they had experienced in basketball games. Particular emphasis was accorded to the two situations measured by the CSBI, "Losing Possession of the Ball to an Opponent," and "Missing an Easy Basket." For each of these situations players wrote on a sheet of paper their typical cognitive, physiological, and behavioural responses. To conclude the conceptualisation phase of the program the inverted-U relationship between arousal and motor performance was presented and discussed. Subjects were shown how heightened levels of arousal can impede sport performance by disrupting an athlete's speed and coordination, and by impairing attentional skills as athletes become too narrowly focused to detect task-relevant cues (Landers & Boutcher, 1986).

The rationales for the stress management training program were then reviewed in relation to the transactional model of stress and an athlete's coping style. Meichenbaum (1985) has emphasised the crucial importance of this step in obtaining commitment to an intervention program. The subjects correctly identified cognitive appraisal,

emotional/physiological response, and behavioural response, as the components of the stress model which could be changed through a coping skills training program. Consequently, the players understood why the following techniques would be taught: (a) cognitive restructuring to identify and modify the specific irrational self-statements that cause a basketball player to appraise a situation in a stress-inducing manner, (b) relaxation training to reduce the player's physiological arousal levels, and (c) self-instructional training to allow the construction of specific self-statements designed to enhance the player's attentional and task-oriented abilities.

The students were introduced to the technique of applied relaxation, a skill which could be implemented quickly in any acute stress situation. To be able to use this technique effectively the students would be exposed to a sequence of relaxation exercises over the course of the workshops. The objectives of these exercises would be to gradually shorten the time needed to achieve relaxation, thus making the skill more portable. Applied relaxation has been taught in this manner by other researchers (e.g., Maynard & Cotton, 1993; Williams, 1986).

Training in relaxation skills was begun using a variant of Jacobson's (1938) progressive relaxation technique. The purposes of this technique were to allow the athlete to, one, recognise the symptoms associated with an aroused state, and, two, reduce the arousal. Progressive relaxation was accomplished by contrasting tension of specific muscle groups with relaxation of those same muscle groups. Thus, over a 20-minute period the subjects learnt to discriminate between tense muscles and relaxed muscles (see Appendix F, Homework Sheet 1A, for this script).

To conclude the session, an overview of the content of the program, in conjunction with a component-by-component analysis of *The Final Coping Routine*, was given to the subjects. The course of the training program is shown in Figure 3. The instructor emphasised that the effectiveness of the coping skills that the players would take from the program would be a function of the amount of effort devoted to acquiring these skills. To be able to employ the skills automatically and with confidence players would need to rehearse them regularly on a daily basis. For homework, the subjects were asked to

Workshop 1 **The Arousal-Performance Relationship in Sport**
The conceptual model of stress discussed in terms of its situational, cognitive, affective, and behavioural components. The arousal-performance relationship discussed as well as the rationale for relaxation training, cognitive restructuring, and self-instructional training. Progressive muscle relaxation training commenced to serve as a physiological coping response.

Workshop 2 **Discovering Self-Talk and Introducing Imagery**
Relaxation training continued and a modified technique practised. Characteristics of effective imagery and the consequences of negative self-talk discussed.

Workshop 3 **Relaxation to Reduce Stress**
Relaxation techniques used to control emotional responses brought on by imagining stressful situations. The role of thought-stoppage and irrational beliefs in the stress process discussed.

Workshop 4 **Self-Talk Statements to Reduce Stress**
Self-instructional training introduced allowing the development of mental coping responses. Stress-reducing self-talk statements practised to control emotional responses brought on via a guided imagery exercise.

Workshop 5 **The Final Coping Routine**
Attentional cues discussed. Continued practise in the use of coping skills with an emphasis on the development of the entire coping routine: the "integrated coping response" followed by an attentional cue.

Figure 3. Stress Management Program for the Experimental Subjects.

practise the progressive relaxation technique for 20 minutes at least once every day, and then, to record an entry in their training diary concerning the effectiveness of each practice session. To facilitate development of progressive relaxation the subjects were encouraged to dictate the script on to a cassette. The subjects were also told that their diaries would be monitored at the beginning of each session so that the instructor could advise them on any problems they were experiencing.

Session 2. The instructor began the session by inspecting diaries and discussing the progressive relaxation homework exercise. Subjects were invited to share with the group any difficulties they had experienced practising the exercise. The transactional model of stress, introduced during the previous session, was quickly reviewed. Cognitive appraisal was identified as the key component in the model in that an athlete's physiological and behavioural responses are primarily determined not by the stressful situation but by his or her interpretation of the situation. If negative, self-talk can disrupt concentration and affect an athlete's performance. Thus, the first step an athlete must achieve to gain control of his or her self-talk is to become aware of what is being said. Consequently, two techniques were discussed for identifying self-talk responsible for triggering the stress process.

The first technique that the instructor emphasised to the basketball players involved maintaining a self-talk log or diary. The group developed two lists on the whiteboard, one reflecting behavioural indicators of stress, the other reflecting thoughts associated with feelings of stress. Examples of behavioural indicators included hand clenches, shaking hands and chewing fingernails. To help subjects identify the origin of their self-talk, their contributions were classified according to Marten's (1990) five categories of negative thinking. These categories are concerned with: (a) worrying about a past performance, (b) the inability to make a decision because athletes keep considering past alternatives, (c) becoming preoccupied with the physical symptoms associated with stress, (d) thinking about the possible consequences of performing poorly, and (e) thoughts of inadequacy.

Another technique the athletes were exposed to for identifying self-talk was imagery-based recall. Meichenbaum (1985) recommends using this technique to help individuals describe their thoughts, images, feelings, and behaviours responsible for their stress. Imagery-based recall involved the group members becoming relaxed and then trying to relive a past stressful episode through visualisation. However, as this technique has been found to be much more effective for athletes trained in imagery, subjects were first involved in a discussion of the mechanics and the uses of imagery.

Imagery was defined as a technique involving the use of all the senses, emotions, and feelings to recreate or create an experience in the mind. The main uses of imagery were described to the group. Uses included: (a) increasing sport perception and awareness of both movement patterns and of self-talk; (b) controlling physiological and emotional responses; (c) practising or learning physical skills, perceptual skills, and psychological skills; (d) overcoming performance problems; and (e) encouraging quicker recovery from injury. The first three of these uses were of particular importance to the present intervention program. A further discussion ensued about several characteristics of effective imagery. First, athletes need to develop vivid images. To illustrate this concept, subjects were asked to recall characteristics of various stressful situations which reflected each of the five senses. For example, in an exam situation, one would *hear* groans of frustrated students, *see* the questions on the paper in front of you, *feel* the pen between your fingers, *smell* deodorants or perfumes in the exam hall, *taste* the lunch you had earlier, and *feel* the kinesthetic movement of your arm as you commit pen to paper. Such an image is further strengthened by reexperiencing the emotions and thoughts associated with the situation. Second, athletes need to be able to control and manipulate their images by will. Third, athletes need to increase their self-perceptions of their sport performance. Guided imagery exercises were then conducted to practise these skills. To practise controlling their images students were exposed to two exercises. In the first exercise they visualised a blank screen altering its colour and shape while in the second exercise they manipulated a jug of cordial in a kitchen using imagery. Finally, an imagery exercise entailing arriving at a basketball stadium through to participation in a game allowed students to visualise themselves on court. All of these exercises are detailed in Appendix F, Homework Sheet 2A. Following the exercises subjects shared their experiences and raised any concerns they had. The instructor reiterated that imagery should be practised regularly and that some type of relaxation training should precede imagery practice.

The last activity of the session included an exercise in passive progressive relaxation. Rather than tensing and relaxing particular muscle groups, the subjects were

instructed to remove the tension instructions from the procedure taught in the previous class. This reduced the exercise period from 20 minutes to 10 minutes. Starting at the head, the subjects slowly progressed down their bodies to their toes. Whenever they experienced tension in any muscle group, they were instructed to let go of this tension until a deeper form of relaxation was achieved (see Appendix F, Homework Sheet 2A, for this script). Following Smith's (1980) guidelines, to facilitate relaxation subjects repeatedly emitted the mental command "relax" during exhalation. Players were made aware that with continued pairing of the command with relaxation effects, the command itself would become the eliciting cue for inducing relaxation. The instructor then briefly reviewed the session with reference to the integrated coping response, *The Final Coping Routine*. His expectations for the group by the next session were as follows: (a) they would be more aware of when they were stressed and would be able to identify stress indicators, (b) they would be able to induce a state of relaxation using the command, "relax," in five to 10 minutes, and (c) they would have developed a basic proficiency in imagery. For homework, the athletes were asked to monitor on a daily basis any occasions when they experienced stress, and to identify the associated self-talk and behavioural stress responses. They were also asked to practise imagery skills and passive relaxation at least once every day. Once again, subjects were instructed to dictate all scripts on to cassette tapes.

Session 3. The session began with the instructor inspecting the athletes' training diaries and discussing the homework exercises. Next, two techniques for reducing or eliminating negative self-talk were introduced to the group. The first technique, thought-stoppage, involves concentrating on the undesired thought briefly and then using a cue word or "trigger" to interrupt or stop the thought (Meyers & Schleser, 1980). The subjects were provided with the following examples of triggers - saying the word "stop," visualising a red flag or a red stop sign, slapping your hand against your thigh, and looking at a large red dot painted on the toe of your shoe. Once each player had decided upon his own trigger word, the instructor advised them that an effective way to practise

this technique was to combine it with imagery, an exercise that was conducted later during the session.

The second technique the players were taught to assist them in eliminating negative self-talk was Ellis' (1981) Rational-Emotive Therapy (RET). The principle underlying this technique is the realisation that the majority of negative self-talk relies on irrational beliefs. When athletes firmly believe that negative thoughts are true, RET can be used to dispute these thoughts. The instructor then led the subjects through an exercise designed to illustrate this technique (Mikes, 1987). Acknowledged as the ABCs of RET, the group began by identifying the two acute stressful situations in basketball as the Activating events (As). As in the previous session, the group listed the emotional, physiological, and behavioural Consequences (Cs) of these activating events. Then, the group discussed the Beliefs (Bs) attached to the consequences of these events. After exposing players' hidden, underlying fears and beliefs, the next step of RET involved Disputing (D) the irrational beliefs. Through this exercise the subjects became aware that they could develop a new set of rational beliefs resulting in more realistic emotions and reactions to sources of acute stress.

For the second half of the session the participants were taken through a guided imagery exercise combining thought-stoppage, relaxation, and imagery rehearsal of the two acute stressful situations (see Appendix F, Homework Sheet 3A, for this script). In accordance with *The Final Coping Routine*, the subjects were asked to generate negative self-talk, experience feelings of stress, use their trigger word to interrupt the process, and then imagine their tension being replaced by relaxation after uttering the command "relax" during exhalation. To allow the players the opportunity to rehearse these coping responses under conditions that resemble the real-life conditions in which they will eventually be used, Smith's (1980) induced affect technique was employed. After imagining the stressful situation, the athletes were asked to turn their attention inward and focus on the feelings elicited by the event. The instructor made repeated suggestions that their feelings were increasing in intensity, and verbal reinforcement was given for indications of increased arousal to shape a strong affective response. Once the athletes

were highly aroused, they were instructed to use the skill of relaxation to reduce their arousal levels. At this time, they were taught the third progression in progressive relaxation, the quick body scan technique (Harris, 1986). Scanning their bodies players were told to use the "relax" command only when areas of high tension were found.

The instructor concluded the session by briefly reviewing what had been achieved by the group with reference to *The Final Coping Routine*. His expectations for the group by the next session were as follows: (a) they would be increasingly aware of when they were stressed during competition and would be proficient in identifying stress indicators, and (b) they would have developed their imagery skills sufficiently so as to allow them to begin rehearsing their coping techniques in response to the acute stressors. For homework the athletes were asked to continue monitoring their thoughts and behavioural responses whenever they were stressed, particularly with respect to the relevant sources of acute stress experienced during basketball games. They were also asked to imagine employing the coping skills described in the homework assignment. This script was to be practised at least once every day. The use of cassette tapes was encouraged. Their final task involved rehearsing the quick body scan method for inducing relaxation. Coloured adhesive dots were distributed to each subject to stick to prominent everyday objects within their home environment. Whenever the subject observed a dot he was to say his trigger word and then practise the relaxation technique. The players were also encouraged to employ this coping routine during basketball games.

Session 4. The session began once again with the instructor inspecting the players' training diaries and discussing the homework exercises. Players were asked whether they had encountered difficulties practising the abbreviated coping routine they had learnt thus far. The group conducted a component-by-component analysis of the routine so that players who had enjoyed more successful practice sessions could share their experiences with the rest of the group. The instructor impressed upon the athletes the need to develop an induced affect condition when imagining the two competition acute stressors. For *The Final Coping Routine* and its components to be maximally effective, players were

reminded that they must rehearse and practise these skills under simulated conditions that are as similar as possible to the real-life situations where they will actually be used.

The participants were then introduced to self instructional training (Meichenbaum, 1985) where the focus was on the development of self-statements that would be emitted in response to the acute stressors. The instructor explained to the players that their situation-specific coping styles would dictate the orientation of their statements. Subjects in the approach coping group developed task-oriented self-statements, whereas those in the avoidance coping group were taught avoidance-oriented self-statements. The first step in this process involved constructing a list of all of the negative self-talk issued by players in response to the two acute stress situations. This was quickly achieved by having players refer to the self-talk inventories they had been maintaining over the past two weeks. By reviewing the principles of RET the players appreciated and understood that their self-statements were quite irrational. The next step was devoted to substituting these dysfunctional thoughts with constructive thoughts commensurate with the player's preferred coping style.

Athletes in the approach coping group discussed three types of self-talk statements which would be conducive for decreasing emotional arousal and increasing performance (Rushall, 1989). These included task-relevant statements, alternative strategy statements, and positive self-statements. These statements were discussed earlier in this chapter. The instructor then conducted an exercise requiring players, in pairs, to devise two task-oriented statements for each of the three categories discussed. This was done separately for each of the two acute stressors. As a group, each of the statements was then shortened to one or two key words. For example, the task-oriented statement, "Next time I'll use soft fingers and get the basket," was abbreviated to the key words, "Soft fingers."

Athletes in the avoidance coping group followed a similar process in arriving at key words relevant to the stressful situations except that they were taught the following three types of self-talk statements: reappraisal statements, parking statements, and discounting statements. To demonstrate how these statements should be utilised when responding to stress, each treatment group was led through a guided imagery exercise combining

thought-stoppage, self-talk, and imagery rehearsal of the two acute situations (see Appendix F, Homework Sheet 4A, for script).

Similar to the imagery exercise held in the previous session, the players were directed to generate negative self-talk, experience feelings of stress, use a trigger word to stop the stress process, and then imagine their tension being replaced by relaxation after uttering the appropriate self-talk statement during inhalation. Once again, Smith's (1980) induced affect technique was employed to elicit a strong affective response. However, in contrast to the previous session, once the athletes were highly aroused they were instructed to control their emotional response by emitting a self-statement.

The fourth session was concluded with the group reviewing their progress towards mastering *The Final Coping Routine*. The instructor stated his expectations of the players which were to be achieved by the final session. These were: (a) the players would have decided upon no more than a couple of thought-stoppage trigger words and self-talk key words relevant to each acute stressor, and (b) the players would be quite comfortable rehearsing the coping skills using imagery. For homework the athletes were asked to finalise their choice of self-talk key words, and to practise daily the imagery script set down in the homework assignment. Their final task involved using a new set of coloured adhesive dots to practise implementing their self-talk key words around the home and during basketball games.

Session 5. The final session began with the instructor inspecting the athletes' training diaries and discussing the homework exercises. Particular attention was given to the players' experiences employing the abbreviated coping routine whether under imagined conditions or real-life circumstances. A component-by-component analysis of the routine provided the players with an opportunity to raise any concerns they might have had in this area.

The instructor briefed the group that learning to concentrate through attentional focus represented the last coping technique they had to learn to complete *The Final Coping Routine*. An essential attentional skill is the ability to focus entirely on the

relevant factors needed to execute a motor skill. The group discussed Nideffer's (1976) two-dimensional model for understanding the attentional demands of a basketball player. The strengths and weaknesses of each of the four attentional styles were examined and the ideal athlete was described as being strong in all four styles as well as being able to shift readily from one type of attentional focus to another. These styles were then discussed with respect to the two acute stress situations. A brainstorming activity followed where group members compiled a list of all the things they could direct their attention towards after coping efforts. Before proceeding further, Marten's (1990) guidelines for improving attention selectivity were introduced together with the ramifications of each: (a) use cue words to focus the athlete's attention on a particular task, (b) attend to positive thoughts rather than negative ones, (c) when performing the upcoming task attend to the present and not to the past, (d) employ coping routines that allow the athlete to execute a sequence of strategies quickly and efficiently, and (e) carry out coping techniques without hesitation. To conclude this part of the session, the group developed a series of attentional cues by abbreviating the attentional statements produced by the brainstorming activity.

The remainder of the session was devoted to rehearsing *The Final Coping Routine*. In accordance with Smith's (1980) cognitive-affective stress management training program, the somatic relaxation and cognitive self-talk coping responses were combined into an integrated coping response. Together with the attentional cue, this coping routine was designed to prevent affect-eliciting self-statements, to control arousal, and to facilitate task-relevant responses when applied within acute stress situations. Role-playing methods and guided imagery were then used to practise the coping techniques. For the role-playing exercise group members were separated into two teams and instructed to simulate passages of play involving the two acute stressors. When a preappointed subject experienced a particular source of acute stress he was asked to execute *The Final Coping Routine*. Initially, the player was encouraged to perform each segment of the routine overtly, thus allowing the instructor to monitor the player's efforts and provide feedback to him. Once the player appeared comfortable with this stage of the role-play he was

instructed to internalise the coping routine. Each athlete was exposed to this same process for each of the two acute stressors.

The guided imagery exercise followed the same procedure as outlined in previous sessions. Specifically, the group was directed to imagine the acute stressor, identify negative self-talk, experience heightened levels of arousal, utter a trigger word to interrupt the stress process, emit an appropriate self-talk statement during inhalation, feel tension drain away during exhalation, and, finally, utter a cue to return attention to the upcoming task (see Appendix F, Homework Sheet 5A, for script). The session ended with the instructor thanking the players for participating in the program. Post-intervention questionnaires and program evaluation forms were distributed. The instructor reminded the subjects that the questionnaires were to be completed over the following three weeks and that the evaluation form was to be filled in after this period. For homework the athletes were asked to practise the entire coping routine daily using the imagery script. They were also asked to implement the coping routine in basketball games at every opportunity.

Placebo-Control Group

As with the two experimental groups, the placebo-control group met the researcher for a 1-hour session every week over a five-week period. To maximise subject adherence, it was necessary to present seminars on sport psychology topics during these sessions. However, unlike the other groups, the placebo-control group was exposed to presentations containing material thought to be irrelevant to anxiety reduction. Handouts from these sessions appear in Appendix G.

Session 1. The instructor and the group members introduced themselves and discussed their perceptions of sport psychology. They were then given a brief overview of the topics to be covered in the program: (a) characteristics of successful athletes, (b) goal setting as a motivational tool, (c) the athlete and the rehabilitation process, and (d) team building concepts and practices. In beginning the first session, the athletes were

invited to share with the group the best performance they had ever had in basketball. A list of words describing these performances was compiled on the whiteboard. Consequently, the athletes were introduced to the concept of the Ideal Performance State (Loehr, 1986). According to research studies, the following psychological characteristics have been associated with peak performances by elite athletes - physically relaxed, mentally calm, low anxiety, energised, optimistic, enjoyment, effortless, automatic, alert, mentally focused, self-confident, and being in control. This list was compared with the list generated by the placebo-control subjects.

Next, the athletes were asked to complete the Profile of Mood States (McNair, Lorr, & Droppleman, 1971), a psychological tool used to measure six transitory affective states including tension, depression, anger, fatigue, vigor, and confusion. Once the players had completed the instrument and identified their individual profiles, the instructor described the "iceberg profile" and how more successful athletes tend to score high on vigor and low on the remaining affective states. He also explained that athletes suffering from overtraining tend to exhibit an inverted iceberg profile.

For the remainder of the session, the group discussed the physiological and psychological indicators of overtraining. Additionally, recommendations for the presentation and treatment of overtraining were established. These recommendations emphasised the value of a well balanced schedule, the nutritional aspects of training, keeping a training diary, and devising goals for both practice and competition.

Session 2. The instructor began the session by asking subjects to commit to paper two things, first, six general-life goals that they intended to achieve by the end of the year, and second, the strategies they planned to use to achieve these goals. After players had shared their goals and their strategies with the rest of the group, the instructor described the fundamental principles of goal setting contained in the work of Gould (1986). The basketball players were informed about: (a) the purpose of setting goals, (b) guidelines for setting goals, and (c) common problems experienced when setting goals. In particular, emphasis was placed on setting realistic, specific, and difficult goals.

Further attention was given to setting performance goals as opposed to outcome goals, and on the importance of recording goals in a diary in specific behavioural terms. Selecting various subjects' goals as vehicles to illustrate these and other concepts, the instructor involved the group in a goal setting exercise. In pairs, the players were given goal setting worksheets on which to record the specified goals, identify goal achievement strategies, identify target dates for achieving the goals, and specify goal evaluation procedures. The group then critiqued each pair's contribution in terms of goal setting principles. To conclude the session each athlete repeated this activity with two of their own goals.

Session 3. A brief review of the goal setting principles outlined in the previous session was conducted. The instructor then explained to the group that athletes often experience difficulty identifying aspects of their sport that they need to develop and, consequently, set goals for. Accordingly, the athletes were exposed to two different methods for performing a needs analysis. The first method required the players to complete a questionnaire, The Competitive Behavior Questionnaire (Harris & Harris, 1984). Once finished, they were instructed to sort items from the measure into similar categories. For example, all of the items concerning learning new skills were placed in one group, while all of the items related to physical fitness were placed in another group. The players were told that from this stage one could quickly devise goals based on the groups of items which had attracted the lowest scores.

The second method for identifying areas in which one would like to improve in sport was derived from the recommendations of Gauron (1984). On a sheet of paper the athletes wrote down ten of their strengths and ten of their weaknesses in basketball. As before, items which appeared to be related were grouped together. These items represented tasks in basketball which the athlete wished to improve. These tasks were then prioritised with athletes ranking those tasks they wished to improve first with lower numbers. Finally, the highest priority tasks were transferred to the goal setting worksheet where specific goals were identified, specific strategies developed, target dates

decided upon, and goal evaluation procedures specified. To conclude the session, the group members critiqued each others goals with respect to the goal setting principles.

Session 4. To begin the session the subjects discussed any injuries they had incurred from basketball. The instructor introduced the mind-body connection in injury (Lynch, 1988) explaining that once an athlete is injured he or she will be subjected to additional stress, which significantly interferes with the healing process. This secondary stress syndrome creates additional fear in the athlete causing reduced blood being sent to the injured area. Such reactions prolong the recovery process. The athletes were then asked to describe the reactions they had experienced at different time points following an injury - immediately afterwards, one day later, and one week later. These were compared with the denial, anger, bargaining, depression, and acceptance stages identified by Lynch (1988).

In the second half of the session the athletes were exposed to several strategies which can be used to rehabilitate the injured athlete. Based on the work of Lynch (1988) and Ievleva and Orlick (1991), each strategy was discussed by the group in conjunction with their own personal experiences. So that the abstraction of the injury is translated into more tangible terms understood by the athlete, the subjects were informed about the importance of obtaining information about the anatomy and physiology of the injured area. Moreover, emphasis was placed on maintaining specific adherence behaviours, eliciting social support, writing down realistic short-term goals, and believing in the treatment. Finally, an exercise in mental imagery was conducted which consisted of listening to a 15-minute segment from an audio tape entitled "In Pursuit of Excellence" (Orlick, 1980). The tape instructed the athletes to visualise: (a) what was happening internally to an injury during the recovery period, (b) overcoming obstacles impeding one's progress to a return to competition, and (c) themselves experiencing successful moves in basketball. A discussion about the tape's effectiveness concluded the session.

Session 5. The final session began with a discussion about what constituted an effective team. Players described their own experiences in terms of Carron's (1982) interpretation of team cohesion, "A dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of its goals and objectives" (p. 124). Cartwright and Zander's (1968) evolutionary steps of team building referred to as forming, storming, norming, and performing, were then presented. Each step of this process was broached in turn, with players suggesting strategies that could be used to facilitate a team's transition from one step to the next.

For the next activity, the players were instructed to complete the Group Environment Questionnaire (Widmeyer, Brawley, & Carron, 1985), a psychological inventory designed to measure an individual group member's perceptions of team cohesiveness. Four measures of cohesiveness were assessed: (1) the attractiveness of the group task to the group member; (2) the attractiveness of the group as a social unit to a team member; (3) a team member's perceptions of the task oriented similarity, closeness, and bonding within the team; and (4) a team member's perceptions of the socially oriented similarity, closeness, and bonding within the team. After the players had completed the inventory, their scores on each of the four measures were interpreted. The instructor then separated the subjects into two groups asking one group to devise strategies for improving social cohesion, the other group strategies for improving task cohesion. After a short period, each group presented their list of strategies to the rest of the group members. Their strategies were discussed in association with recommendations made by Anshel (1990c). A list of strategies for enhancing team cohesion was then presented to the players (Anshel, 1990c; Carron, 1982).

To conclude the session, subjects shared their opinions about the utility of each strategy and methods were discussed for implementing them. The session ended with the instructor thanking the players for participating in the program. Post-intervention questionnaires and program evaluation forms were distributed. As with the experimental groups, the instructor reminded the placebo-control group subjects that the questionnaires were to be completed over the following three weeks and that the evaluation form was to

be filled in after this period.

Results

Analyses of data are based on four sets of dependent variables: (a) positive and negative affect, (b) primary appraisals of threat and challenge, (c) perceived control, and (d) coping efficacy. These analyses aimed to examine the effects of a stress management training program in reducing the adverse effects of acute stress experienced by competitive basketball players across two selected acute sources of stress. This study intended to achieve this aim by teaching stress management strategies that were consistent with players' preferred coping styles. Because of previous research suggesting that individuals employ different appraisal and coping mechanisms across different stressful situations, separate tests within each source of acute stress were conducted to examine the related hypotheses. The alpha level for all of these statistical comparisons was .05.

Results are presented in three main sections. The first section includes the means and standard deviations of the manipulation check questions given to subjects in the three intervention groups. The structure of the second and third main sections is identical except that each deals with a different source of acute stress. Each of these two sections is subdivided into two further sections. In the first of these subsections, differences between the experimental group and the placebo-control group on the four sets of dependent variables were examined. Since interacting effects amongst the dependent variables were not of interest in this study separate ANOVAs were considered appropriate for comparing the extent of the change of each set of dependent variables over the intervention period. Results indicating significant F values were followed by comparisons to determine between which groups the significant differences existed. The second subsection presents relationships between the four sets of dependent variables.

Cronbach's alpha (1951) was computed to assess the reliability of several of the measures used in the present study. Internal consistency values are presented in Table 23 and all appeared to be satisfactory.

Table 23

Internal Consistency Values for Coping Style Measures and for Situational Measures for the Two Acute Stress Situations (n = 24)

Scale	Alpha Reliabilities
Approach coping style[1]	.80
Avoidance coping style[1]	.82
Approach coping style[2]	.79
Avoidance coping style[2]	.84
Positive affect	.88
Negative affect	.85
Perceived control[1]	.81
Perceived control[2]	.84

1 Situation 1 (Losing the Ball)

2 Situation 2 (Missing an Easy Basket)

Manipulation Checks

During the course of the program all of the experimental subjects were required to keep a personal written log. This log consisted of Training Diary sheets which subjects attended to on a daily basis. To enhance adherence and monitor each subject's progress in mastering the various coping skills, the instructor discussed these sheets with the subject at each weekly workshop. After subjects had completed the post-intervention questionnaires, they were asked to answer a set of questions to: (a) verify the utilisation of the various coping strategies, and (b) determine the effectiveness of these same strategies. Initially, these responses were averaged separately for each of the two experimental groups, but because there were no significant between-group differences, a

grand mean was computed by combining the responses from each group. Descriptive data for these responses are presented in Table 24.

The manipulation check questions indicated that the stress management intervention program was beneficial to the participants. Specifically, subjects experienced a reasonably high degree of success in reaching their desired state for each of the coping routine's individual components (i.e., imagery, induced arousal, relaxation, attentional focus). The question "Do you understand how your coping routine is meant to help you?" received the highest overall mean, while the question "How much difficulty do you have in controlling your images?" when imagining stressful situations received the lowest overall mean. Also, the subjects fully appreciated how the coping routine was meant to help them and felt that that they had learnt it quite well. Finally, the players indicated feeling very comfortable using the coping routine during basketball games, they used the routine regularly, and they found the routine reasonably effective in reducing feelings of stress during basketball games.

The placebo-control group rated most of the different components of their program as quite useful. The most highly rated workshops (Characteristics of Successful Athletes, and Goal Setting) were those of a very practical nature which were more readily applicable to basketball performance. Workshops that received lower ratings (The Athlete and the Rehabilitation Process, and Team Building) were perceived as being less immediately relevant to the individual athlete.

Effectiveness of the Program

Situation 1: Losing Possession of the Ball to an Opponent

To determine the impact of the intervention program on each of the three groups, responses from the pre- and post-intervention questionnaires were examined. For each dependent variable a mean pre-intervention score was calculated by averaging responses from the three questionnaires completed prior to the program. Similarly, a mean post-intervention score was computed by averaging responses from the three questionnaires

Table 24

Manipulation Check Questions for Each of the Intervention Groups

Questions	M	SD
Experimental Groups		
1. When practising your coping routine through imagining stressful situations:		
a. How vivid are your images? (1=not vivid at all, 7=extremely vivid)	5.00	1.15
How much difficulty do you have in controlling your images? (1=not difficult at all, 7=extremely difficult)	3.38	1.41
How well can you feel the movements of your body? (1=not well at all, 7=extremely well)	4.13	1.13
b. How strong are your emotions just before you say "stop!"? (1=not strong at all, 7=extremely strong)	5.19	1.42
c. Can you interrupt your negative self-talk when you say "stop!"? (1=not at all, 7=very much so)	5.25	1.39
d. How relaxed are you after saying your self-talk key word/s? (1=not relaxed at all, 7=extremely relaxed)	5.50	.81
e. How relaxed are you after saying "relax"? (1=not relaxed at all, 7=extremely relaxed)	6.00	1.45
f. Does your attentional cue help you to refocus on the game? (1=not at all, 7=very much so)	5.25	.78
2. Do you understand how your coping routine is meant to help you? (1=not at all, 7=very much so)	6.19	.83

(Table 24: Continued)

Questions	M	SD
Experimental Groups		
3. How well have you learnt your coping routine? (1=not well at all, 7=extremely well)	5.88	1.20
4. Do you feel comfortable using your coping routine in basketball games? (1=uncomfortable, 7=completely comfortable)	5.75	1.10
5. How often do you use your coping routine in basketball games? (1=not used at all, 7=used all the time)	5.19	1.11
6. How effective is your coping routine in reducing your feelings of stress during basketball games? (1=not effective at all, 7=extremely effective)	5.56	.96
Placebo-Control Group		
7. How useful did you find the workshop 'Characteristics of Successful Athletes'? (1=not useful at all, 7=extremely useful)	5.38	.74
8. How useful did you find the workshop 'Goal Setting - Part 1'? (1=not useful at all, 7=extremely useful)	5.75	1.03
9. How useful did you find the workshop 'Goal Setting - Part 2'? (1=not useful at all, 7=extremely useful)	5.85	.92
10. How useful did you find the workshop 'The Athlete and the Rehabilitation Process'? (1=not useful at all, 7=extremely useful)	4.25	.71
11. How useful did you find the workshop 'Team Building'? (1=not useful at all, 7=extremely useful)	4.80	1.12

completed after the intervention. Preliminary ANOVAs indicated that no significant pretreatment group differences existed on any of the dependent variables. Given the absence of group differences on the pretreatment measures, post-pre improvement (change) scores were calculated for each dependent variable and served as the unit of analysis. Improvement was defined in terms of increases on the positive affect, challenge appraisal, perceived control, and coping efficacy measures, and decreases on the negative affect, and threat appraisal measures. The means and standard deviations of the pre- and post-intervention scores for each dependent variable, in each intervention group, are shown in Table 25.

To determine if subjects who learnt stress management strategies consistent with their coping style would exhibit greater improvements in reducing the adverse effects of acute stress across the course of the program than subjects in the placebo-control group who were not taught coping strategies, a series of ANOVAs were computed. Because six ANOVAs were being conducted, that is, one for each of the six dependent variables, a Bonferroni adjustment at the .05 level of significance yielded a more stringent .008 level of significance for these ANOVAs. Results revealed that three of the six ANOVAs were significant.

Specifically, challenge appraisals yielded a significant treatment effect, F (2,21) = 5.31, $p < .008$. Planned comparisons revealed the difference to be between the mean change scores of the avoidance coping group and the placebo-control group. Challenge appraisals for the avoidance coping group improved by 40.82%, compared to a decrease of 16.57% by the placebo-control group. The changes in challenge appraisals are illustrated in Figure 4. For perceived control, significant differences emerged, F (2,21) = 6.19, $p < .005$. Planned comparisons revealed the difference to be between the avoidance coping group and the placebo-control group. Perceived control for the avoidance coping group improved by 34.38%, whereas the placebo-control group recorded a decrease of 4.71% (see Figure 5). Finally, significant changes over the duration of the program were detected for coping efficacy, F (2,21) = 7.55, $p < .003$. Planned comparisons revealed differences between the avoidance coping group and the

Table 25

Means and Standard Deviations for Affect, Primary Appraisals, Perceived Control , and Coping Efficacy at Pre- and Posttreatment in Response to "Losing Possession of the Ball to an Opponent"

	Positive affect			Negative affect			Challenge		Threat		Control		Efficacy	
Group	preR	pre	post	preR	pre	post	pre	post	pre	post	pre	post	pre	post
Approachers														
M	3.07	1.71	1.89	1.54	2.30	2.37	3.33	3.07	3.29	2.55	3.14	3.57	3.33	3.67
SD	.34	.75	.88	.65	.65	.60	.58	1.26	.84	.88	.49	.67	.65	.94
Avoiders														
M	3.25	1.53	2.08	1.37	2.55	2.11	2.67	3.76	3.29	2.33	3.17	4.27	3.38	4.24
SD	.38	.28	.65	.39	.38	.65	.94	.66	.45	.96	.52	.43	.56	.42
Control														
M	3.53	1.39	1.50	1.38	2.38	2.33	3.50	2.92	3.04	2.83	3.61	3.44	3.91	3.33
SD	.33	.24	.29	.51	.47	.31	1.08	.81	.58	.40	.65	.55	.61	.47

Note. preR represents pretreatment values for these variables when the subjects were relaxed.

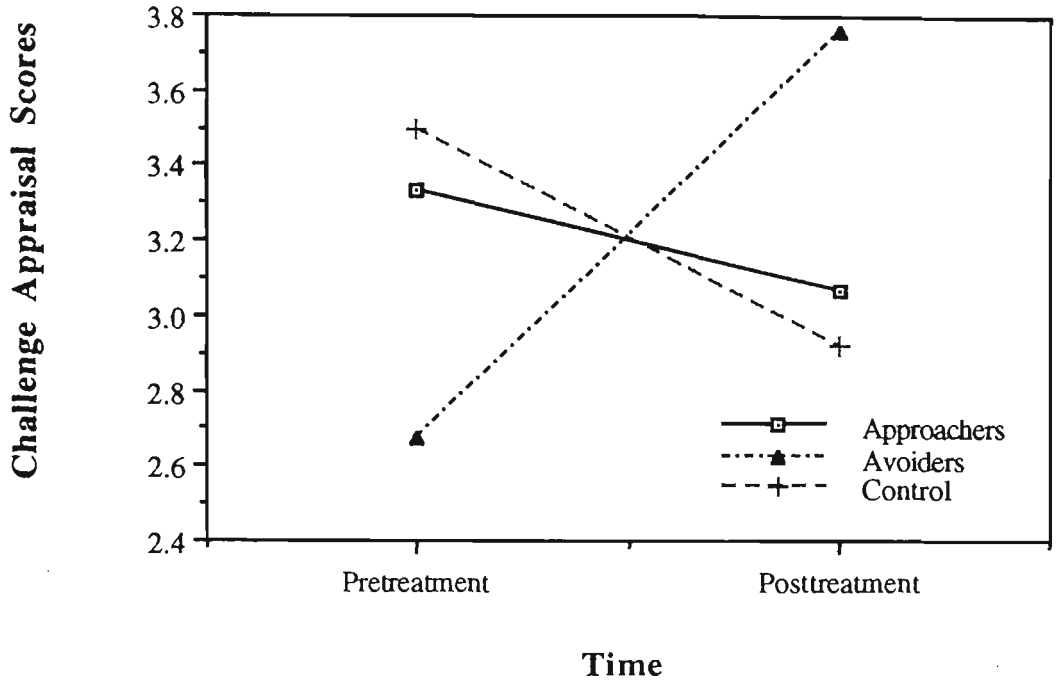

Figure 4: Mean Challenge Appraisal Scores at Pretreatment and Posttreatment for the Placebo-Control and the Experimental Groups in Response to "Losing Possession of the Ball to an Opponent."

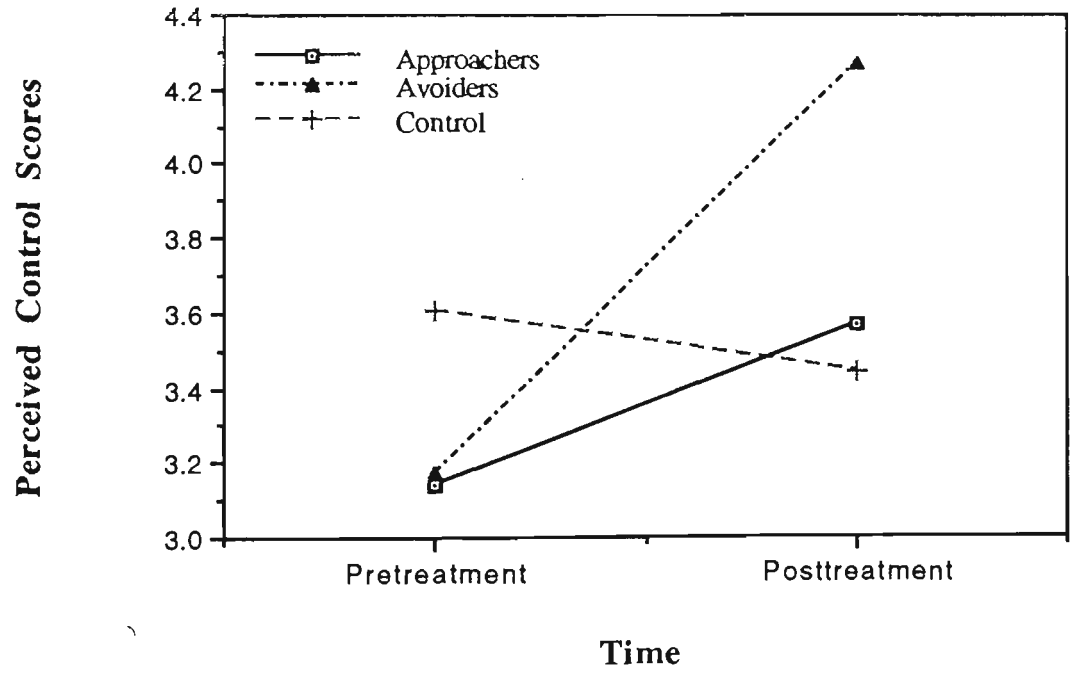

Figure 5: Mean Perceived Control Scores at Pretreatment and Posttreatment for the Placebo-Control and the Experimental Groups in Response to "Losing Possession of the Ball to an Opponent."

placebo-control group, and between the approach coping group and the placebo-control group. Coping efficacy increased by 25.44% for the avoidance coping group, and increased by 9.91% for the approach coping group, whereas it decreased by 14.83% for the placebo-control group (see Figure 6).

Although conclusive support for the effectiveness of the stress management programs was not indicated by the results of the statistical tests of significance, a perusal of Table 25 does suggest that players in the experimental groups realised greater improvements than the placebo-control subjects across the dependent measures. Specifically, both the approach coping group and the avoidance coping group reported greater improvements than the placebo-control group for positive affect, threat appraisals, perceived control, and coping efficacy. Negative affect was the only variable in which the improvement experienced by the placebo-control group was greater than that of one of the experimental groups.

Situation 2: Missing an Easy Basket

Responses from the pre- and post-intervention questionnaires were examined to assess the impact of the intervention program on each of the three groups. As preliminary ANOVAs indicated no significant pretreatment group differences on any of the dependent variables, post-pre improvement (change) scores were once again calculated for each dependent variable. Table 26 presents the means and standard deviations of the pre- and post-intervention scores for each dependent variable, in each intervention group.

A series of ANOVAs were computed to examine whether subjects in the experimental groups experienced greater improvements in reducing the adverse effects of acute stress across the course of the program than subjects in the placebo-control group. As for the previous stressful situation, a Bonferroni adjustment at the .05 level of significance yielding a more stringent .008 level of significance was necessary for the six ANOVAs conducted. Only one of the six ANOVAs was found to be significant.

Specifically, perceived control demonstrated a significant treatment effect, F (2,21) = 6.10, $p < .008$. Following planned comparisons, the difference was found to be

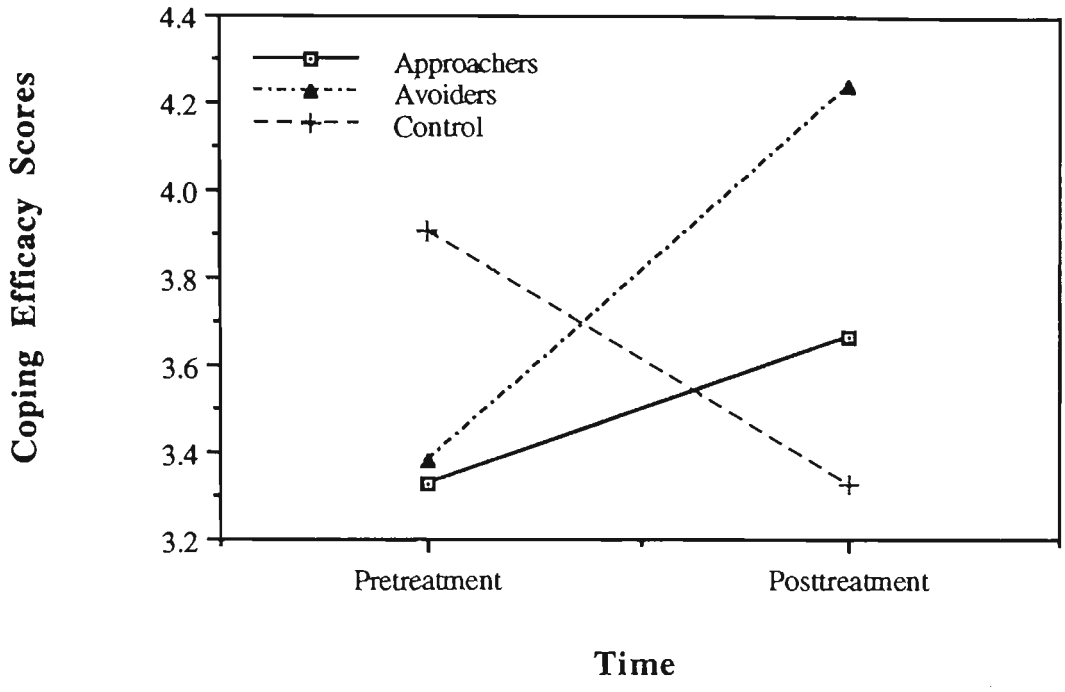

Figure 6: Mean Coping Efficacy Scores at Pretreatment and Posttreatment for the Placebo-Control and the Experimental Groups in Response to "Losing Possession of the Ball to an Opponent."

Table 26

Means and Standard Deviations for Affect, Primary Appraisals, Perceived Control , and Coping Efficacy at Pre- and Posttreatment in Response to "Missing an Easy Basket"

	Positive affect		Negative affect		Challenge		Threat		Control		Efficacy	
Group	pre	post	pre	post	pre	post	pre	post	pre	post	pre	post
Approachers												
M	1.76	1.78	2.20	2.38	3.04	3.07	3.00	2.70	3.11	3.51	3.18	3.63
SD	.80	.81	.63	.49	.82	1.19	.86	.77	.56	.77	.53	.56
Avoiders												
M	1.39	1.92	2.80	2.16	2.67	3.33	3.14	2.19	3.19	4.22	3.57	3.95
SD	.34	.53	.31	.72	.67	.90	.33	1.21	.56	.42	.53	.59
Control												
M	1.25	1.42	2.49	2.52	3.29	2.58	3.38	2.79	3.54	3.24	3.46	3.21
SD	.24	.24	.35	.38	1.03	.56	.77	.56	.42	.45	1.00	.73

between the avoidance coping group and the placebo-control group. Perceived control beliefs for the avoidance coping group improved by 32.29%, whereas the placebo-control group recorded a decrease of 8.76%. The changes in perceived control are presented in Figure 7.

The results for this source of acute stress resemble those recorded for the previous stressor. Once again, inconclusive support was found for the efficacy of the intervention programs above that given to the placebo-control group. Nevertheless, trends in the data do provide indications that improvements occurred. Both experimental groups reported greater improvements than the placebo-control group for challenge appraisals, perceived control, and coping efficacy.

Relationships Between Dependent Variables

Situation 1: Losing Possession of the Ball to an Opponent

To assess the manner in which improvements on the dependent variables were related to one another, correlation coefficients were computed. As evident in Table 27, significant relationships were evident among the variables. Specifically, an improvement in perceived control was significantly associated with an improvement in challenge appraisals, a reduction in threat appraisals, and an increase in coping efficacy. Several other significant relationships existed between the appraisal variables and the arousal measures. Perceived control was negatively associated with negative affect, suggesting that high perceptions of control were related to lower levels of negative affect. Also, threat appraisals were negatively associated with positive affect and positively associated with negative affect. Challenge appraisals, on the other hand, were positively associated with positive affect and coping efficacy, and negatively associated with negative affect. Significant relationships involving coping efficacy and indices of arousal were also evident. An improvement in positive affect was associated with an increase in coping efficacy. Also, an increase in negative affect was associated with a decrease in coping efficacy.

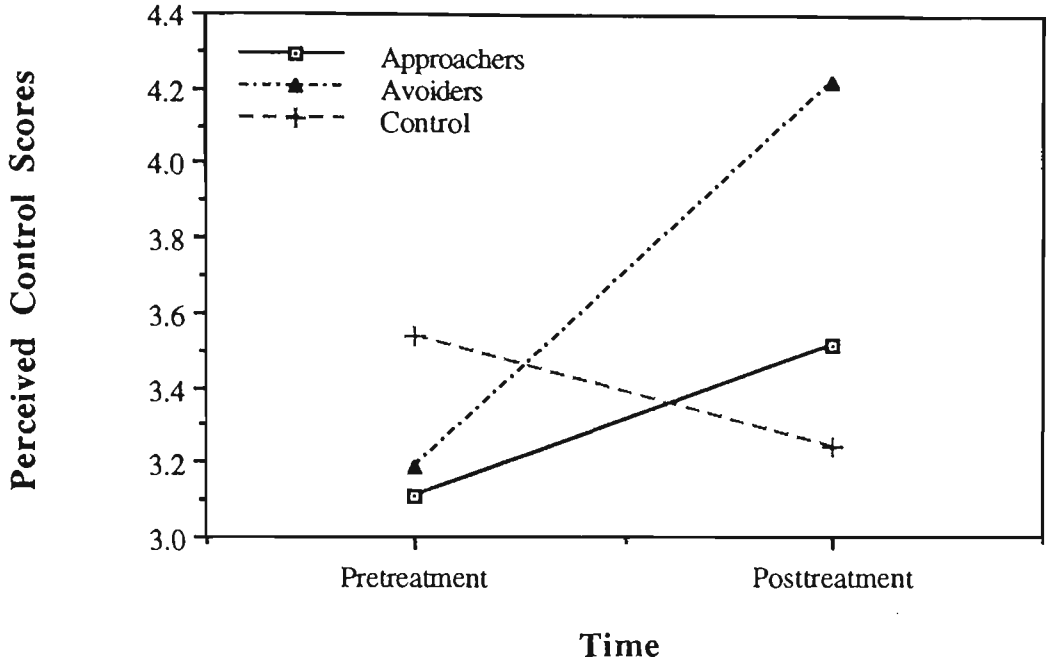

Figure 7: Mean Perceived Control Scores at Pretreatment and Posttreatment for the Placebo-Control and the Experimental Groups in Response to "Missing an Easy Basket."

Table 27

Post-Pretreatment Intercorrelations Between the Dependent Variables in Response to "Losing Possession of the Ball to an Opponent"

Variable	1	2	3	4	5	6
1. Positive affect	-					
2. Negative affect	-.70***	-				
3. Challenge appraisals	.63***	-.67***	-			
4. Threat appraisals	-.42*	.58**	-.49*	-		
5. Perceived control	.39	-.50*	.57**	-.54**	-	
6. Coping efficacy	.45*	-.43*	.63***	-.38	.67***	-

Note.

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed tests).

Situation 2: Missing an Easy Basket

Correlations between the dependent variables are presented in Table 28. Specifically, an improvement in perceived control was associated with an improvement in challenge appraisals and an increase in coping efficacy. Several other significant relationships were evident between the appraisal variables and the arousal measures. Threat appraisals were negatively associated with positive affect and positively associated with negative affect. Challenge appraisals, on the other hand, were positively associated with positive affect and negatively associated with negative affect. Nonsignificant relationships were found between coping efficacy and indices of arousal.

Table 28

Post-Pretreatment Intercorrelations Between the Dependent Variables in Response to "Missing an Easy Basket"

Variable	1	2	3	4	5	6
1. Positive affect	-					
2. Negative affect	-.79***	-				
3. Challenge appraisals	.52**	-.69***	-			
4. Threat appraisals	-.52**	.66***	-.42*	-		
5. Perceived control	.19	-.26	.61**	-.24	-	
6. Coping efficacy	.19	-.22	.29	-.27	.58**	-

Note.

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed tests).

Discussion

The present study examined the effectiveness of a stress management training program in helping basketball players deal with the adverse effects of acute stress during competition. Specifically, the effects of stress management strategies consistent with athletes' preferred coping styles were examined on changes in positive and negative affect, primary appraisals of threat and challenge, perceived controllability, and perceived coping efficacy.

It was hypothesised that the two experimental groups compared to the placebo-control group, would report: (1) increased positive affect, challenge appraisals, perceived controllability, and coping efficacy, and (2) decreased negative affect and threat appraisals. Although some evidence was found to support these predictions, the results

were generally inconclusive. Specifically, in response to the acute stressor, "Losing Possession of the Ball to an Opponent," significant treatment effects were found for challenge appraisals, perceived control, and coping efficacy. Planned comparisons indicated, in each of these instances, that the avoidance coping group experienced greater improvements than those experienced by the placebo-control group. In addition, the approach coping group perceived their coping efficacy to have improved more than the placebo-control group. However, in response to the second acute stressor, "Missing an Easy Basket," perceived control was the only dependent variable to reveal a significant treatment effect. In this case, the avoidance coping group recorded greater improvements than the placebo-control group.

Much of the research that has been conducted in the area of coping with stress in sport has been inconclusive due to the existence of various design shortcomings and methodological limitations. The present study attempted to address several of these problems by: (a) using a motivational-control group to counter the Hawthorne effect, and gauge the efficacy of the stress management strategies, (b) implementing manipulation checks to ensure that the coping strategies were valid and were actually being utilised to cope with acute stress during competition, (c) providing athletes with systematic coping routines which could be quickly employed, and (d) measuring psychological processes which mediate stress and coping.

Although previous studies which have employed stress management programs have revealed some positive cognitive and performance changes (e.g., Anshel, 1990b; Kerr & Leith, 1993), an absence of motivational- or placebo-control groups has made it unclear whether it was the treatment or the mere presence of being in an investigation which produced the improvements displayed by the participants. The inclusion of a motivational-control group in the present study increased the likelihood that it was the coping skills which enabled the experimental subjects to obtain greater improvements compared to the control subjects. Moreover, in response to manipulation check questions subjects receiving the stress management program indicated that they regularly implemented the coping routine in basketball games and believed that it helped them

manage acute stress.

A major feature of the present study was the provision of coping strategies that were organised into a situation-specific coping routine that could be quickly and efficiently employed in time-limited encounters of a stressful nature. Previous research has been criticised for instructing athletes to select from a "smorgasbord" of coping skills when confronted with a stressful encounter during competition. Anshel (1990b) referred to this effect as "paralysis by analysis," where the athlete is confronted with too many strategies from which to choose or implement in a limited time-frame. To allow the athlete to quickly select an appropriate coping strategy, Anshel recommended identifying the strategies that are most functional in meeting personal and situational needs. Consequently, following the advice of researchers to present individuals with intervention strategies that are organised into a coping routine (e.g., Boutcher & Rotella, 1987; Orlick, 1986) and that match their coping styles (e.g., Anshel, 1990b; Martelli et al., 1987; Miller, 1992; Terry, 1991), experimental subjects were presented with either an approach-oriented or an avoidance-oriented coping routine according to their coping predisposition. However, support for this approach to prescribing stress management strategies was inconsistent with only the avoiders exhibiting significantly greater improvements than the control subjects on some of the variables. Reasons for this inconsistency will be explored later.

Few studies have attempted to clarify the psychological processes which mediate stress. Although studies by Anshel (1990b), Anshel et al. (1990), and Johnston and McCabe (1993) were based on a transactional model of stress, they had limitations. In Anshel's investigations with the COPE model, subjects trained in cognitive-behavioural strategies demonstrated improvements in affect, attributions, and performance. However, no assessment of cognitive appraisals was made. Johnston and McCabe found evidence that coping enhances individuals' perceptions of their capability to successfully meet the demands of a stressful encounter but admitted that their findings were subject to external validity problems associated with laboratory research.

The intervention program utilised in the present study was also grounded in the transactional model of stress (e.g., Lazarus & Launier, 1978) which views stress as a transaction between person and environment factors. Recognising the competitor's response capability, or perceived control, as the key issue of appraisal within this model, it was predicted that subjects with improved perceptions of control in specific acute stress situations would be more likely to make challenge-type appraisals which, in turn, would promote positive rather than negative emotions. Results from the present field study may indicate support for the importance of appraisal processes in coping and coping efficacy. It was revealed that the participant's perceived control may have been the key factor in determining how threatened and challenged he felt about the stressor and whether coping efforts were perceived as being effective or not. Certainly, when the avoidance coping subjects were trained in strategies that matched their coping style, they experienced significant changes in perceived controllability for both of the stressors. These changes were associated with improvements in their challenge appraisals and coping efficacy for the stressor, "Losing the Ball." Apart from perceived controllability, no significant improvements were observed for any of the variables in response to the stressor, "Missing an Easy Basket," although correlations between perceived control, primary appraisals, and coping efficacy were quite strong. These findings are consistent with research suggesting that coping resources and subjective appraisals are useful targets for stress management interventions (Johnston & McCabe, 1993; Meichenbaum, 1985).

In addition to influencing coping efficacy and cognitive appraisals, improved perceived controllability has attentuated stress in previous studies (e.g., Johnston & McCabe, 1993). Results of the present investigation were inconsistent with respect to changes in the subjects' positive and negative affect. While the avoidance coping group recorded a reduction in negative affect for both sources of acute stress following the intervention, the approach coping group reported higher stress at this time. Other studies have reported similar findings in response to stress management programs (e.g., Crocker et al., 1988; Kerr & Leith, 1993; Sarason, Johnson, Berberich, & Siegel, 1979).

Sarason et al. (1979), for example, conducted a stress inoculation intervention with police academy trainees and found treatment subjects to be more angry and test-anxious than control subjects. Because a central focus of the program was to make subjects more aware of their physiological and cognitive responses to anxiety-eliciting situations, the researchers suggested that the higher self-ratings of anger and anxiety by the treatment group subjects may simply have reflected an increased awareness of their own responses to certain situations. This seems a probable explanation for the higher self-ratings of negative affect recorded by some subjects in the present study who, in accordance with principles inherent in coping skills programs (Meichenbaum, 1985; Smith, 1980), were taught to closely monitor their own thoughts, feelings, and behaviours following stressful incidents. However, it does not explain why only one, and not both, of the experimental groups recorded increased negative affect as both groups were instructed in self-awareness techniques.

Crocker et al. (1988) considered another factor to explain the lack of anxiety-reducing effects they obtained in a study with volleyball players exposed to SMT. They contended that such results contradicted the cognitive view of emotion upon which the SMT program was based. Rather than supporting the view that cognitive appraisal of a situation determines the emotion experienced, Crocker et al. argued that their findings suggested that affect and cognitions were interrelated but independent systems. This relationship has important implications for stress management programs. If it could not be demonstrated that an individual's cognitive appraisals influenced his or her feelings of affect, coping strategies such as progressive relaxation and self-talk statements would have to be questioned. Despite the present findings in this area, manipulation checks indicated that subjects found the coping skills to be effective in reducing stress. Still, the relationship between affect and cognitions demands further attention in stress management studies in sport.

It is possible that the superior improvements exhibited by the avoidance coping group were a reflection of the greater efficacy of avoidance coping strategies in the short-term. This is consistent with literature which has found that certain strategies are more

effective depending on how soon after the stressful encounter adaptation is assessed. In particular, studies have shown that avoidance was associated with more positive adaptation in the short-term, while approach was more beneficial in the long-term (e.g., Mullen & Suls, 1982; Roth & Cohen, 1986; Suls & Fletcher, 1985). In sport, Krohne and Hindel (1988) reported that top table-tennis players who employed cognitive avoidance strategies to cope with critical situations occurring during matches won more games in tie-break situations and were less anxious than players who did not use these strategies. Apparently, in sport activity which is continuous and ongoing athletes cannot afford to become distracted by self-centered interfering cognitions. It is still unclear, however, the importance of designing and implementing strategies relevant to an athlete's coping style in specific stressful situations.

Other studies have chosen to concentrate solely on aspects of the situation when prescribing coping strategies. Johnston and McCabe (1993) emphasised the availability of control in an aversive situation as the criterion for determining which coping strategies should be utilised by the athlete. There is considerable evidence, particularly in the clinical psychology literature, for adopting either one of these approaches when teaching stress management strategies (see Auerbach, 1989, and Ludwick-Rosenthal and Neufeld, 1988, for reviews). There is some evidence to suggest that individual dispositional differences are significant determinants of responses in situations characterised by ambiguous conditions, while they play a less important role when the situational demands are unambiguous and imposing (e.g., Folkman, 1984). Future research might try and combine these two approaches and, thus, address the issue of how dispositional variables such as coping styles interact with stressful situations which vary in perceived control.

Finally, this study was not without its own limitations. First, the sample size was relatively small (n = 24). Despite the use of appropriate statistical procedures, this remains a common problem in most field studies and may have resulted in certain effects not emerging because of low statistical power. Secondly, it is possible that the length of time devoted to teaching the coping skills was not sufficient. For example, Mace (1990), in his review of cognitive-behavioural interventions in sport, commented that more

positive results have been obtained in studies employing intervention programs lasting as long as 16 weeks.

In summary, results of the present study partially validated the implementation of stress management programs in modifying the affect, appraisals, and coping efficacy of basketball athletes in competition acute stress situations. Significant improvements were experienced by the avoidance experimental group compared to the placebo-control group on some of the outcome measures. Given the inconclusive nature of the results, future studies are needed to clarify the efficacy of coping style when prescribing coping skills training programs for athletes.

CHAPTER SIX

GENERAL DISCUSSION

Stress in competitive sport can impede the athlete's optimal performance as well as his or her physiological, emotional, and psychological well-being (Burton, 1988; Cohn, 1990). Despite these findings, coping in sport has only recently attracted the attention of researchers. Coping with acute stress, in particular, is very much at a pioneering stage. Consequently, the objectives of this thesis were threefold: (1) to identify sources of acute stress in sport, (2) to examine the effects of personal dispositions and situational appraisals on athletes' coping responses, and (3) to implement an effective coping skills training program enabling athletes to apply appropriate coping skills to reduce stress encountered during competition. The findings are discussed in relation to previous literature.

Sources of and Responses to Acute Stress of Competitive Basketball Players

The first of the three studies examined the sources of acute stress experienced by competitive basketball players during competition and the corresponding perceived intensity of these stressors. It was found that the most highly rated sources of acute stress by the players were "I Miss an Easy Basket," "The Referee Reverses a Decision After Prompting by an Opposing Player," "An Opponent Physically Abuses Me," "I Lose Possession of the Ball to an Opponent," "I am Responsible for a Turnover," and "The Referee Makes What I Thought Was a Bad Call on Me." Stressors involving physical injuries, making performance errors, and receiving disagreeable decisions from referees or umpires have been found across sports irrespective of whether the sports involve

individual or team participation, or are characterised as contact versus non-contact (e.g., Cohn, 1990; Gould et al., 1993; Scanlan et al., 1991).

The results of the first study also indicated that certain sources of acute stress were considered stressful by most basketball players. In particular, the following sources of acute stress were frequently reported by players: "The Referee Makes What I Thought Was a Bad Call on Me," "I Miss an Easy Basket," "An Opponent Physically Abuses Me," "I am Responsible for a Turnover," and "I Lose Possession of the Ball to an Opponent." These findings appear to contradict results reported by other researchers (e.g., Gould et al., 1983; Scanlan et al., 1991), although Cohn (1990) reported little variability between stressors experienced by youth golfers. It was proposed that the incompatibility between these results may stem from the nature of the population being examined. The present study, similar to Cohn, utilised non-elite (local) athletes whereas the other studies investigated elite (Nationally ranked) athletes.

The importance of identifying sources of stress of a selected population, discussed earlier, typically represents the first step in the design of stress management programs. Clients can become aware of cues that signal the onset of stressful reactions and then employ situation-specific coping strategies (Meichenbaum, 1985; Smith, 1980). Therefore, a secondary purpose of the first study was to examine how basketball players cope with various acute stressors identified earlier.

Adopting the approach-avoidance typology of coping responses postulated by Roth and Cohen (1986), a wide range of cognitive and behavioural coping strategies specific to selected sources of acute stress were generated. In accordance with Krohne (1988) and Miller's (1987) recommendations, these stressors were: (a) characterised by varying degrees of controllability and predictability, (b) considered highly stressful by players, and (c) occurred frequently during competition. Subsequently, these strategies, as predicted, formed one of two factors, approach coping or avoidance coping, following exploratory factor analysis procedures. Consistent with strategies described in previous studies (e.g., Carver et al., 1989; Crocker, 1992; Madden et al., 1990), coping responses that loaded on the approach coping factors consisted of overt attempts to alter the stressor,

ways of thinking about how to deal with the stressor, efforts to seek emotional support, and ways of ventilating emotions. Avoidance coping consisted of attempts to avoid thinking about the stressor, behavioural efforts to detach oneself from the stressor, passive acceptance that the stressor occurred, and efforts to avoid confronting one's feelings.

Several methodological issues evident in existing coping scales were discussed in the literature review. These included the applicability of coping items to different kinds of stressful events and the definition of the time period for which subjects reported coping efforts (Krohne, 1988; Stone et al., 1991), the emphasis on empirical considerations in developing coping measures (Krohne, 1993), the absence of acute stress coping inventories (Anshel, 1994), and the use of standard stressful scenarios within coping style scales which subjects may have considered neither stressful nor realistic (Krohne, 1988). The first study addressed these limitations. First, the CSBI developed in this study was situation-specific and contained only applicable context-relevant coping items. Second, a specific time frame for coping efforts was specified. Third, classification of coping strategies was based on both theoretical deductions and empirical calculations. Fourth, subjects reported coping efforts in response to acute stressors that were actually experienced by the subjects during basketball competition.

Many researchers have recognised the importance of taking into account personal factors, or dispositions, when devising stress management programs (e.g., Chen & Singer, 1992; Weinberg & Williams, 1993). Thus, the major purpose of the second study was to investigate the effects of personal dispositions and situational appraisals on the coping strategies of basketball players in response to specific acute stress situations experienced during competition.

Predictors of Coping With Sources of Acute Stress: The Role of Personal Dispositions and Situational Appraisals

Cross-Situational Consistency of Coping Responses

It was hypothesised that players would vary their coping responses across situations, and that situational coping responses would be influenced more by situational appraisals than by personal dispositions. To examine these hypotheses, players were asked to complete questionnaires which measured the players' responses to four sources of acute stress previously identified in the first study. Following a basketball game, each player was required to recall the four situations and rate each situation in terms of perceived stress intensity, appraisals of threat and challenge, perceived controllability, and the coping responses used. The second packet of questionnaires that the players completed contained information on their personal dispositions. Self-esteem, generalised control beliefs, monitoring-blunting coping style, and approach-avoidance coping style were the dispositions assessed. Analyses of data on personal dispositions, situational appraisals, and situational coping responses were then performed to test the hypotheses.

The findings of this study provided partial support for the stability of players' coping responses across situations. Using a multiway frequency analysis, significant associations were observed in the players' coping responses across particular situations. More specifically, 31% of players reported using approach coping responses across the two situations, "Receiving Physical Abuse," and "A Bad Call," and 65% of players used approach coping responses across the situations, "Missing an Easy Basket," and "Losing the Ball." No evidence was found for cross-situational stability of avoidance coping.

The results of previous studies examining the consistency of coping across situations have been equivocal, with some studies finding support for cross-situational consistency of coping responses (e.g., Compas et al., 1988; Patterson et al., 1990), and others finding no support (e.g., Bouffard & Crocker, 1992; Terry, 1991). Studies by Larsson et al. (1988) and Kaissidis (1993) reported consistency in coping across different

situations with police officers and basketball referees, respectively. Results from both of these studies were attributed to the uniform training and work socialisation inherent in the respective professions. Similarly, these factors may explain the consistency in approach coping responses found in the present study. Researchers in sport psychology have shown that ability, effort, and resolve are perceived as the dominant causes of success in sport (Bukowski & Moore, 1980; Roberts & Pascuzzi, 1979), attributes that are often associated with athletes trying to use approach coping, or mastery over difficult situations (Madden et al., 1990).

Other researchers have emphasised the importance of recognising the prevailing situational demands and appraisals made by the individual when interpreting consistency in coping. Accordingly, after inspecting the players' situational appraisal ratings for each of the situations, it was suggested that consistency in the basketball players' approach coping responses across the first two situations (i.e., "Receiving Physical Abuse" and "A Bad Call") may have been partially due to similarities in stressor demands, whereas consistency in the players' approach coping responses across the second two situations (i.e., "Missing an Easy Basket" and "Losing the Ball") may have been partly a result of similar demands and the type of appraisals. It is recommended that future investigations consider the prevailing contextual demands and situational appraisals when examining cross-situational consistency of coping. As Krohne (1989) contended, consistency in coping across situations could only be established when an individual employed the same form of strategies across situations of varying degrees of controllability and predictability.

Another objective of the second study was to compare the respective contributions of personal dispositions and situational appraisals in predicting players' situational coping responses. It was anticipated that situational appraisals would be better predictors of basketball players' situational coping responses than personal dispositions. Logistic regression models tested this hypothesis by assessing how the explanatory variables related to the dichotomous outcome variable, an approach or avoidance coping response. Responding to claims that important relationships are often lost when data is aggregated over situations (e.g., Bolger, 1990; Epstein, 1983), separate models were calculated for

each source of acute stress.

Contrary to expectations, personal dispositions accounted for greater proportions of deviance in the prediction of coping than situational appraisals across all of the situations. In fact, for the two situations, "Receiving Physical Abuse," and "A Bad Call," personal dispositions represented the sole significant set of predictors. The lack of effects of the situational appraisals on coping emphasise a more situation-oriented approach to coping for these situations. For the remaining two situations, "Missing an Easy Basket," and "Losing the Ball," both sets of predictors were significant and accounted for similar proportions of deviance, although personal dispositions did appear to contribute more to predicting coping responses than situational appraisals once the order of entry into the regressions had been reversed. Thus, for these situations the data suggested that coping was more transactional in nature and that personal and situational variables together influenced a player's coping response. It appears that in certain situations a situational approach to coping predominates, whereas in other situations a transactional approach is more evident. Also, although these results fail to support previous studies that have emphasised the role of situational appraisals in determining coping (e.g., Bouffard & Crocker, 1992; Kaissidis, 1993; Larsson et al., 1988), they are consistent with recent claims that too much emphasis has been given to situational variables in explaining coping responses (Ben-Porath & Tellegen, 1990; Moos & Swindle, 1990).

The logistic regression analyses also enabled the theoretical models of coping to be tested. This was achieved by reversing the order of entry of the personal dispositions and situational appraisals into the regression models and examining the subsequent contributions of each set of variables in predicting coping. In response to the situations, "Receiving Physical Abuse," and "A Bad Call," similar amounts of deviance were produced for the personal dispositions and for the situational appraisals irrespective of their order of entry into the regressions. These findings suggest evidence for an additive model of coping in which personal and situational variables have direct effects on coping that are independent of each other (Terry, 1991). For the situations, "Missing an Easy Basket," and "Losing the Ball," however, support was found for an interactive model of

coping (Parkes, 1986). The proportion of deviance explained differed depending on the order of entry of the personal dispositions and situational appraisals into the regressions, thus indicating that the two sets of variables interacted in predicting situational coping responses. Previous studies have also found evidence for both additive and interactive models (e.g., Aldwin & Revenson, 1987; Kaissidis, 1993; Parkes, 1986). Studies by Parkes and Kaissidis, for example, found support for both of these models as a function of the type of coping mode and the populations examined, respectively. In Study 2, however, support was found for both additive and interactive models depending on the stressful situation examined.

The present findings also support studies where researchers have argued for the investigation of other variables, such as coping styles, as important determinants of coping (Krohne, 1988; Roth & Cohen, 1986; Terry, 1991). Among the personal dispositions, the approach-avoidance coping style variables predicted the individual's choice of coping strategy across the four situations, thus justifying its inclusion in the present study. Moreover, for the first two situations, "Receiving Physical Abuse," and "A Bad Call," these coping style variables were the only variables to significantly predict coping responses. For the situation, "Missing an Easy Basket," self-esteem was an additional significant predictor, with monitoring exerting weak effects upon coping. Internal control beliefs was the only other personal variable to contribute to the prediction of coping responses for the situation, "Losing the Ball," although its influence was weak. Self-esteem, monitoring, and internal control beliefs were all related to approach coping. Among the situational variables, stress intensity predicted approach coping responses for the situation, "Missing an Easy Basket." For the same situation, both threat and control appraisals made a significant contribution in the prediction of avoidance coping responses. For the situation, "Losing the Ball," perceived control was the only situational variable that emerged as a significant predictor of coping. It was related to avoidance coping responses.

In summary, basketball athletes demonstrated a degree of stable coping patterns across certain stressful situations. These coping patterns were found for approach coping

responses but not for avoidance coping responses. For all of the situations, personal dispositions made a significant contribution to predicting situational coping responses, whereas situational appraisals were significant predictors only for two of the situations. Results confirmed the utility of measuring an athlete's coping style in acute stress situations; the only variables to emerge as significant predictors of coping responses for each of the situations were the basketball players' approach and avoidance coping styles. In some situations these coping styles represented the sole predictors of situational coping responses. In other situations, situational appraisals such as perceived stress, threat, and controllability, accounted for additional significant contributions in predicting coping. To understand better an individual's coping efforts in particular acute stressful encounters, both personal dispositions and situational appraisals should be taken into consideration.

Predictors of Situational Coping

Several hypotheses were tested in which relationships between personal dispositions, situational appraisals, and situational coping responses were predicted. These hypotheses were examined by calculating logistic regression models containing all of the explanatory variables. Findings concerning relationships between personal dispositions and coping responses are presented first, followed by relationships between situational appraisals and coping responses.

With respect to relationships between personal dispositions and situational coping responses, it was predicted that an individual's approach-avoidance coping style would significantly predict his situational coping response. This hypothesis was confirmed for each of the four stressful situations. In fact, as previously mentioned, the coping style variables were the only variables of the ten entered into the regressions to significantly predict a player's coping response for each of the situations. These findings are comparable with previous research which has investigated the effects of an individual's enduring coping style on specific coping responses (Carver & Scheier, 1994; Carver et al., 1989), and justifies the use of a situation-specific approach when measuring coping

(Krohne, 1989; Stone et al., 1991).

In terms of relationships between situational appraisals and situational coping responses, it was expected that perceptions of high stress intensity would predict approach coping. Evidence was found for this hypothesis for only one of the four situations. These mixed results contribute to the body of literature that is equivocal on this issue (e.g., positive relationship: Mattlin et al., 1990; Terry, 1994; negative: Anderson, 1977; Terry, 1991). Specifically, no support for the hypothesis was found for the situations, "Receiving Physical Abuse," "A Bad Call," and "Losing the Ball." As alluded to earlier, the first two of these situations may represent encounters in basketball competition where certain forms of coping are demanded, irrespective of the situational appraisals made. Indeed, the logistic regressions indicated that situational appraisals had little influence in predicting coping responses in these situations. Stress intensity did influence coping for the situation," Losing the Ball," although the effects were weak and nonsignificant. However, consistent with expectations, highly stressed players preferred to use approach coping when responding to the situation, "Missing an Easy Basket." Similar results were obtained by Madden and his colleagues (Madden et al., 1989, 1990) in studies with competitive runners and basketball players, respectively, and are in accord with the concept that the more stressed the individual the greater the need to implement coping strategies (Lazarus & Folkman, 1984; Pearlin & Schooler, 1978).

It was also predicted that perceptions of challenge would predict approach coping whereas perceptions of threat would predict avoidance coping. Some evidence was found for these hypotheses. In one situation ("Missing an Easy Basket") highly threatened players preferred to use avoidance coping, and in another situation ("Losing the Ball") highly challenged players were more likely to use approach coping (although this weak effect was lost once the personal disposition variables were controlled in the regression model). The lack of consistent relationships between threat and challenge primary appraisals and coping responses are comparable to Carver and Scheier's (1994) findings with students undertaking an exam. Students who felt threatened reported using mental disengagement strategies but no association was found between perceptions of

challenge and coping. To interpret these findings, the researchers suggested that feelings of challenge may be far less responsive to coping than feelings of threat. In the present study it appears that coping efforts were not perceived as necessary when encounters were appraised as challenging. Given that one of the primary goals of coping research is to investigate how individuals deal with difficult and aversive circumstances, researchers need to ensure that subjects are reporting coping efforts about encounters of a highly threatening nature.

Another hypothesis regarding relationships between situational appraisals and situational coping responses addressed the effects of secondary appraisals on coping. It was hypothesised that perceived controllability would predict approach coping. However, for the situations, "Missing an Easy Basket," and "Losing the Ball," the converse was found; perceived controllability predicted the use of avoidance coping. No significant relationships were found for the other situations. Studies have shown that having control over a situation can be stressful when it conflicts with either an individual's beliefs and commitments (e.g., Averill, 1973; Folkman, 1984), or their coping style (e.g., Martelli et al., 1987; Miller & Mangan, 1983).

In the present study, basketball players may have been using coping strategies which opposed their preferred style of coping. If so, according to Lazarus and Folkman's (1984) proposal that primary appraisals mediate the relationship between an individual's situational appraisals of control and his or her coping response, perceived controllability should have been positively correlated with increased perceptions of threat. However, the opposite pattern was found, that is, perceived controllability was positively associated with perceptions of challenge. Kaissidis (1993) reported somewhat similar findings in his study investigating referee's coping responses to sources of acute stress experienced during competition. He found that perceived control was significantly correlated with avoidance coping. Perhaps in acute stress situations in sport athletes are disposed to employ avoidance coping strategies, irrespective of their primary appraisals. Further research is needed to clarify this issue.

In summary, the strong relationship found between an athlete's coping style and his situational coping response suggests that there is merit in assessing an individual's preferred method of coping when investigating coping processes. In terms of relationships between situational appraisals and situational coping responses, partial support was found for the hypotheses tested. This evidence was confined to the two situations, "Missing an Easy Basket," and "Losing the Ball." Results indicated that perceived stress intensity significantly predicted approach coping for one of these situations. Also, threat perceptions significantly predicted avoidance coping in one situation, while challenge perceptions predicted approach coping in the other situation. Finally, no evidence was found to support the hypothesis that perceived controllability would predict approach coping. Rather, for the same two situations perceived controllability was found to predict the use of avoidance coping. These findings illustrate the complexity of the mechanisms underpinning the coping process, and suggest that research should examine aversive situations in isolation.

Relationships Within Sets of Variables Predicting Situational Coping

Another set of hypotheses were generated in which relationships between personal dispositions and between situational appraisals were predicted. Intercorrelations were used to examine these hypotheses. Findings concerning relationships between personal dispositions are presented first, followed by relationships between situational appraisals.

With regard to relationships between certain personal dispositions, it was predicted that high internal control beliefs and self-esteem would be positively related to an approach coping style, and negatively related to an avoidance coping style. Research has shown that individuals with internal control beliefs who assume responsibility for events in their lives employ more problem-focused and fewer emotion-focused coping strategies as they believe that they can influence the outcome of stressful encounters (e.g., Parkes, 1986; Terry, 1991, 1994). Research has also found that individuals possessing high self-esteem have confidence in their own abilities to resolve problems and, thus, tend to

engage in more active coping and less avoidance-related strategies (e.g., Carver et al., 1989; Fleishman, 1984). Results of Study 2 partially supported previous research. Specifically, internal control beliefs was positively related to an approach coping style for the situations, "Missing an Easy Basket," and "Losing the Ball." However, internal control beliefs was positively correlated with an avoidance coping style for the situations, "Receiving Physical Abuse," and "A Bad Call." Kaissidis (1993) reported similar results in his study with basketball referees. He found that self-esteem and optimism were negatively related to approach coping and positively related to avoidance coping. Bearing in mind that previous research has established relationships between self-esteem and internal control beliefs (Carver et al., 1989; Terry, 1991, 1994), Kaissidis suggested that individuals with high self-esteem may use avoidance coping in response to acute sources of stress, and approach coping in the long run. Similarly, in the present study the context in which the coping strategies were assessed may play an important role in explaining the results. Perhaps in situations where one has been provoked and retaliation is expected, it actually requires higher levels of internal control beliefs to use avoidance coping.

It was also hypothesised that monitoring and blunting would be positively related with approach and avoidance coping styles, respectively. These hypotheses were confirmed but only for the situations, "Missing an Easy Basket," and "Losing the Ball." Nonsignificant relationships were found for the situations, "Receiving Physical Abuse," and "A Bad Call." Other studies have reported equivocal relationships between the coping style constructs, approach and avoidance, and monitoring and blunting. Carver et al. (1989), for example, found that monitoring was positively associated with seeking social support for instrumental reasons, turning to religion, and ventilation of emotions, but no associations were evident between blunting and scales from the COPE. Based on these findings, players in the present study who preferred to utilise approach coping strategies may have done so to deal with distress emotions or as a way of eliciting support from teammates in response to "Losing the Ball." In keeping with Miller's (1987) conceptual definition of blunting, players using avoidance strategies after "Missing an Easy Basket," or "Losing the Ball," appeared to cope by distracting themselves from the

stressor. The absence of relationships among these coping style constructs has led researchers to suggest that these constructs are not identical and that different contexts might produce different associations (Carver et al., 1989; Kaissidis, 1993; Miller, 1990).

In terms of other relationships between personal dispositions, internal control beliefs were significantly correlated with self-esteem, a finding that is consistent with other research findings (Terry, 1991, 1994). Also, monitoring was negatively related to blunting, a finding which Miller (1990) believed was not inconsistent with the independence of these two dimensions. The approach and avoidance coping modes used in the present study were similarly found to be empirically distinct.

Additional hypotheses were made concerning relationships between situational appraisals. It was expected that stress intensity would be negatively correlated with perceived control. Contrary to expectations, stress intensity was positively related to perceived control for three of the situations. Also, the logistic regression models discussed earlier revealed that for two of the same three situations players with perceptions of high controllability were more likely to use avoidance coping responses. Therefore, situations of high controllability may lead to increased levels of stress, which subsequently facilitate the use of an avoidance strategy. Researchers have suggested that control can be stress inducing when it: (a) conflicts with strongly held values (Folkman, 1984), (b) causes too much self-focusing (Carver & Scheier, 1981), (c) is antagonistic to a person's preferred coping style (e.g., Martelli et al., 1987; Miller & Mangan, 1983), and (d) is surrounded by an increased sense of responsibility (Ludwick-Rosenthal & Neufeld, 1988). These criteria should be taken into account in future studies investigating the relationship governing controllability and perceptions of stress.

It was also predicted that perceived controllability would be positively related to challenge perceptions and negatively related to threat perceptions. These hypotheses were partially supported with perceived controllability being positively correlated with challenge perceptions for the situations, "Missing an Easy Basket," and "Losing the Ball." No associations were found between perceived controllability and threat perceptions for any of the four situations. Similar results were reported in two studies

examining the effects of situational control appraisals on primary appraisals of threat and challenge with students undertaking exams (Carver & Scheier, 1994; Folkman & Lazarus, 1985). The researchers from both of these studies reported that the exams were characterised more by challenge emotions than by threat emotions. In the context of the present study this might imply that the basketball players appraised the four acute stress situations as more challenging than threatening. The threat and challenge situational appraisals reported by the players certainly suggests that this was the case. Further research is warranted to clarify these relationships, particularly with respect to more threatening situations.

In summary, some of the hypotheses in Study 2 regarding the relationships between personal dispositions and between situational appraisals were supported. In terms of personal dispositions, positive relationships were found between internal control beliefs and both an approach coping style and self-esteem, between monitoring and an approach coping style, and between blunting and an avoidance coping style. However, for different situations internal control beliefs was positively associated with an avoidance coping style. Also, monitoring was negatively related to blunting. Finally, in terms of situational appraisals, positive relationships were observed between perceived controllability and challenge perceptions for two of the situations. Contrary to expectations, stress intensity was positively related to perceived control for three of the situations. Overall, these findings provide additional evidence that investigations of coping should follow a situation-specific approach.

Coping Effectiveness

There is no clear consensus as to which coping strategies are most effective in resolving problems, or relieving emotional distress. However, as discussed in the present literature review, several factors have been identified which can influence the relation between coping and the reduction of stress. Three of these factors are: (a) the controllability of aspects of the stressful situation, (b) the point in time at which

effectiveness is evaluated, and (c) the compatibility between coping style and the coping strategies employed during the stressful encounters.

In the second study, results revealed that situational variables influenced the basketball players' selection of coping strategies for two of the four acute stress situations, namely "Missing an Easy Basket," and "Losing the Ball." Players who appraised these two encounters as highly controllable were more likely to use an avoidance coping response. Although a number of studies have found that approach-oriented coping strategies are used in situations appraised as controllable (e.g., Carver et al., 1989; Folkman & Lazarus, 1980; Forsythe & Compas, 1987), researchers have suggested that at certain times it can be preferable to avoid if confronted with controllable situations characterised by task- or role-demands that conflict with an individual's values and commitments (Folkman, 1984; Litt, 1988). In such cases, the increased sense of responsibility or the cognitive burden associated with synthesising relevant information in time-limited situations (Ludwick-Rosenthal & Neufeld, 1988), may be stress-inducing. Considering that stress intensity was positively related to perceived control for three situations in the second study, it is possible that the perception of multiple coping options was responsible for the elevated stress responses of the players. Therefore, to avoid becoming too self-focused in acute situations it may be beneficial for athletes to adopt avoidance coping responses when dealing with situations perceived as controllable.

Researchers have also examined coping effectiveness by exploring the short- and long-term effects of coping. Past studies have suggested that avoidance coping strategies are more effective in the short-term, whereas approach strategies are more effective in the long-term (Mullen & Suls, 1982; Suls & Fletcher, 1985). Apparently, when initially confronted with stressful events, that is, in the short-term, individuals may feel cognitively overwhelmed and that they do not possess sufficient resources to cope. In these instances, avoidance coping strategies may reduce stress and provide one with the necessary time to assimilate information about the encounter before employing approach coping efforts directed at the problem (Suls & Fletcher, 1985). One study that did examine the short-term effectiveness of coping was by Krohne and Hindel (1988). They

reported that table-tennis players who employed more avoidance and less approach coping strategies exhibited less anxiety and won more matches than players who employed the reverse coping pattern. However, coping effectiveness was not measured in the present study.

Coping effectiveness has also been investigated by considering the compatibility of coping strategies or information that is consistent with an individual's coping style. There is considerable evidence to support the contention that individuals who are generally identified as information seekers (approachers, monitors, sensitizers) are less stressed when given high levels of stimulus-relevant information than when given low levels of stimulus-relevant information (e.g., Martelli et al., 1987; Miller & Mangan, 1983; Shipley et al., 1979). These studies also found stress-reductive effects when individuals identified as information avoiders (avoiders, blunters, repressors) were provided with low levels of information. Auerbach (1989) acknowledged that findings supporting this approach have been obtained most consistently when individual differences were based on situation-specific measures of coping. Study 2 found that a basketball player's coping style significantly predicted his situational coping response. But, as previously mentioned, coping effectiveness was not assessed. Therefore, a primary purpose of the third study was to investigate the effectiveness of a stress management training program in reducing the adverse effects of acute stress experienced by competitive basketball players. The program entailed the teaching of coping strategies that were compatible with a player's coping style in specific situations.

The Effectiveness of Stress Management Training on Affect, Situational Appraisals, and Coping Efficacy of Competitive Basketball Players

The transactional model of stress provided the framework for the coping skills training programs. A factor that is extremely important within this model is cognitive appraisal (Lazarus & Folkman, 1984). Recognising the athletes' response capability as the critical aspect of cognitive appraisal, it was expected that the stress management

intervention would improve subjects' perceptions of control in particular situations which would, in turn, promote challenge primary appraisals, thus leading to positive rather than negative emotions. Consequently, it was predicted that the two experimental groups, compared to the control group, would report: (1) increased positive affect, challenge appraisals, perceived control, and coping efficacy, and (2) decreased negative affect and threat appraisals. Some evidence was found to support these hypotheses.

Specifically, in response to the acute stressor, "Losing the Ball," the avoidance coping group experienced significantly greater improvements than those experienced by the control group for challenge appraisals, perceived control, and coping efficacy. The approach coping group also recorded significantly greater improvements than the control group for coping efficacy. In response to the second acute stressor, "Missing an Easy Basket," the avoidance coping group recorded a significantly greater improvement for perceived control compared to the control group.

These results add to those reported in other acute stress intervention studies which have attempted to clarify the psychological processes mediating stress (Anshel, 1990b; Anshel et al., 1990; Johnston & McCabe, 1993). Although Anshel and his colleagues reported improvements in subjects' affect, attributions, and performance following training in the COPE model, cognitive appraisals were not measured. Also, after detecting improvements in perceived capability and performance, Johnston and McCabe acknowledged that their study had been beset by difficulties inherent in laboratory research. The present investigation addressed the limitations of these studies and investigated how threatened and challenged athletes were in response to a stressor and the extent to which coping efforts were perceived as being effective. However, support for the stress-reducing effects of the intervention program was inconclusive. While the experimental groups recorded improvements in positive affect for both sources of acute stress, only the avoidance coping group reported concomitant reductions in negative affect. The approach coping group, on the other hand, actually found the situations more stressful following the intervention program. Previous studies have reported similar effects (e.g., Crocker et al., 1988; Kerr & Leith, 1993; Sarason et al., 1979).

Sarason et al. (1979), for example, implemented a stress management program with police academy trainees and found that treatment subjects became more angry and test-anxious than control subjects. The researchers suggested that the unexpected results by the treatment group subjects may have reflected an increased awareness of their own responses to certain situations. This seems to be a probable explanation for the higher self-ratings of negative affect recorded by the approach coping subjects in the present study given that a central focus of the intervention program was to increase subjects' awareness and understanding of their behavioural and cognitive responses to stressful situations.

Another explanation for the inconsistent anxiety-reducing effects exhibited by the two experimental groups has also been addressed in the literature. For example, Crocker et al. (1988) suggested that such results might imply that affect and cognitive appraisals were interrelated but independent systems, a finding that is contradictory to a cognitive view of emotion. The relevance of certain coping strategies within stress management programs would have to be carefully reviewed if it was established that a change in an athlete's cognitive appraisals were unrelated to a change in affect or feelings of stress. Future investigations are needed to help clarify the relationship between affect and cognitive appraisals.

This study attempted to address several shortcomings identified in other stress management investigations. These shortcomings included: (a) athletes being taught too many strategies resulting in confusion and indecisiveness about which strategy to implement (Anshel 1990b), (b) a lack of manipulation checks assessing whether subjects were actually rehearsing their coping techniques (Greenspan & Feltz, 1989), and (c) a failure to include attention-placebo control groups (Kerr & Leith, 1993). Following the lead of other researchers who have provided athletes with a structured sequence of strategies for improving performance and/or dealing with acute stress in sports (Anshel, 1990b; Boutcher & Rotella, 1987; Orlick, 1986), basketball athletes in the third study were presented with specific coping routines to use for each of the two selected acute stress situations.

The structure of the coping routines incorporated Smith's (1980) integrated coping response which has been used in other studies to combat stress with athletes (e.g., Crocker et al., 1988; Ziegler et al., 1982). In accordance with Smith's cognitive-affective stress management training program, experimental subjects were trained to identify negative self-talk, emit a trigger word or action to interrupt the stress process, utter a stress-reducing self-talk statement during inhalation, and apply cue-controlled relaxation while exhaling. Initially, each of these segments of the integrated coping response was rehearsed separately. Later, they were combined into a one-breath sequence which was completed with a refocusing cue to return the player's attention to the game.

The central element of these routines were self-talk statements. Subjects were taught statements that were oriented towards their coping style. Approach-oriented statements were designed to focus the athlete's attention on performance-related aspects of the stressful incident or the ensuing emotions. Avoidance-oriented statements, on the other hand, encouraged the athlete to either reappraise, ignore, or reduce the importance of the source of acute stress. The entire coping routine was taught so that it could be rapidly implemented by players after encountering the stressful situations. Manipulation checks indicated that players were, in fact, practising their coping routines. Further, the checks revealed that each of the routine's individual components was being rehearsed effectively. Imagery was used to simulate the competition stressful situations. Research has demonstrated that controllability and kinaesthetic abilities probably represent the most important aspects of imagery if skill rehearsal is to be effectively transferred to the actual competition environment (e.g., Rushall, 1989; Weinberg, 1988). In the present study, subjects from the two experimental groups experienced similar degrees of success in applying the imagery skills. While the subjects rated the vividness of their images as high, they only reported moderate success in controlling either their images or the associated body movements. Other manipulation checks indicated that players felt comfortable employing the coping routine in basketball games, and that the routine was highly effective in reducing stress elicited by the situations, "Missing an Easy Basket," and "Losing the Ball." Thus, manipulation checks failed to clarify the inconsistent results

displayed by the two experimental groups. The orientation of the self-talk statements was the only factor in which the two groups differed.

Past research has supported the greater efficacy of avoidance strategies compared to approach strategies in the short-term (e.g., Krohne & Hindel, 1988; Suls & Fletcher, 1985). The results of the present thesis lend some support for this proposal. In Study 2, 65% of players reported using approach coping responses across the situations, "Missing an Easy Basket," and "Losing the Ball," and yet, in Study 3, the avoidance coping group exhibited greater improvements than the approach coping group for the same two situations. The use of approach strategies by players in the second study does not necessarily imply that they were coping effectively. Lazarus and Folkman (1984) maintained that no a priori assumptions could be made about what constitutes good or bad coping without the measurement of specific effectiveness indices. Thus, the findings of Study 2 and Study 3 might not be incongruous and may, in fact, reflect the superior efficacy of avoidance coping techniques in the short-term. Perhaps in acute stress situations in sport, athletes should employ avoidance coping strategies irrespective of their coping style. To resolve this issue, future studies will need to examine the effectiveness of coping strategies that are compatible with the athlete's coping style versus strategies that are incompatible with the athlete's coping style.

The issue of matching the intervention program to the participant's coping style may also impact upon the length of the program. Miller (1990) has suggested that high monitors and low monitors differ in the number of intervention sessions they desire and need to reduce their stress. Because high monitors typically show slower improvements in their stress-related problems than low monitors, high monitors want both more intervention sessions and more information. Thus, future intervention programs that distinguish approach copers from avoidance copers may need to consider providing more sessions for individuals characterised by an approach coping style.

Finally, the use of a motivational-control group further reinforced the efficacy of the stress coping procedures. Without such a group there is always the possibility that changes observed by the experimental groups are merely the result of these subjects

participating in the study.

In summary, Study 3 provided partial support for the use of stress management programs, in particular, specific coping routines, for reducing the adverse effects of acute stress in sport. The avoidance coping group experienced significantly greater improvements across several of the dependent variables compared to the placebo-control group for both of the acute stress situations. These variables included challenge appraisals, perceived control, and coping efficacy. The approach coping group, on the other hand, only recorded a significant improvement for coping efficacy when compared with the control group. Finally, inconsistent results concerning the stress-reducing effects of the intervention program suggested that affect and cognitive appraisals may be independent systems. In conclusion, it remains unclear whether there is merit in teaching athletes stress management strategies that are consistent with an individual's coping style, although future investigations should ensure that both manipulation checks and motivational-control groups are utilised to check that any prescribed coping strategies are responsible for any observed improvements in cognitions and performance.

Methodological Considerations

Following the recommendations of others (e.g., Krohne, 1988; Meichenbaum, 1985; Smith, 1986), the present thesis examined competitive stress at the theoretical, empirical, and intervention levels. The first study determined the sources of acute stress experienced by competitive basketball players during a game. Four of these acute stress situations were subsequently employed to elicit athletes' coping responses, thus contributing to the formation of the CSBI, a situation-specific survey designed to assess an individual's coping style. In the second study, situational coping responses were examined as a function of selected personal dispositions, situational appraisals, and coping style. After establishing the CSBI's ability to predict situational coping responses with a particular population of basketball players, the third study involved a stress management program where athletes were instructed in coping strategies consistent with

their coping style. This final study attempted to reduce the adverse effects of acute stress faced by players by altering their perceptions of affect, cognitive appraisals, and coping efficacy.

One aspect of the present thesis involved the development of the CSBI. Past researchers had examined existing coping scales and found many of them to be invalid and unreliable. Methodological issues that needed to be addressed included the applicability of coping items to different kinds of stressful events (Stone et al., 1991), the definition of the time period for which individuals reported coping efforts (Stone et al., 1991), the realistic nature of the situations described (Carver et al., 1989), the absence of acute stress inventories (Anshel, 1994), and the theoretical foundations from which the coping responses were derived (Krohne, 1993). Adopting the approach-avoidance dichotomy postulated by Roth and Cohen (1986), the CSBI contained coping items relevant to selected acute stressors actually experienced during basketball competition.

To further validate the efficacy of the stress coping techniques presented to subjects in the stress management training program, manipulation checks and a motivational-control group were included in the third study. Excluding these elements from stress management programs has been recognised as a pervasive limitation in past research (Anshel, 1990b; Greenspan & Feltz, 1989). Although the Hawthorne effect is difficult to control in any study, its effects were minimised by involving a control group presented with worthwhile sport psychology seminars containing information unrelated to anxiety reduction. To verify that experimental subjects were rehearsing the various coping skills, and to help determine the effectiveness of these skills, subjects were asked to maintain written training logs and complete detailed manipulation checks. Inclusion of these requirements as well as the control group enabled the investigator to conclude that the changes observed in the dependent variables were due to the interventions.

Another strength of the present studies was that they were conducted in field settings. Several researchers have criticised the use of laboratories for conducting stress and coping research because of the difficulty of designing tasks that resemble stressful encounters in real life and, thus, induce real affective states (Larsson et al., 1988; Lazarus

& Folkman, 1984). Furthermore, in artificial settings subjects are aware that their performance will have no serious or unpleasant consequences. As Larsson et al. asserted, although naturalistic stressful situations were usually much less controllable than laboratory stressful tasks, the external validity associated with this methodological approach meant that any findings could often be generalised to other populations.

The studies within this thesis did contain certain limitations. The studies relied exclusively on non-elite athletes to guarantee sufficient subject numbers for factor analyses computations in the construction of the CSBI. Previous research has documented that perceptions of stressful incidents are a function of ability level and that elite athletes and non-elite athletes differ with respect to what encounters they consider to be stressful (e.g., Cohn, 1990; Gould et al., 1983). Scanlan et al. (1990), for example, found that spectators and coaches represented intense sources of stress for elite figure skaters, two stressors that were not cited by the basketball players in the first study. However, the players did identify several incidents that they found extremely intense. These incidents were then used throughout the following two studies ensuring that players were reporting coping efforts in response to stressful situations. Further, Kaissidis (1993) found that elite and non-elite Australian basketball players did not differ in their personal dispositions, perceptions of control and stress intensity, and coping responses to four acute stress situations.

Another limitation involved the small number of acute stressors retained for the third study which incorporated a stress management program. Having illustrated the situation-specificity of coping efforts in Study 2, it became necessary in Study 3 to group subjects according to their coping style with respect to particular situations. This meant that three different treatment groups (two experimental, one motivational-control) might exist for each of the four acute stress situations. Fortunately, the subjects exhibited a degree of cross-situational coping consistency enabling the formation of three treatment groups which focused on two stressful situations. This is a logistical problem that researchers will continuously face when investigating the implementation of stress management programs consistent with athletes' preferred methods of coping. Catering for individuals'

coping styles will dictate the extent of the program devised by sport psychologists.

All of the information gathered for the thesis was obtained retrospectively and used self-report measures. Bolger (1990) contended that a determination of the causal pathways of appraisal, coping, and coping efficacy could not be made using a retrospective design. Thus, one cannot be certain whether approach coping efforts, for example, cause or are a result of perceived stress. To establish causal direction processes Aldwin and Revenson (1987) suggested that longitudinal research designs be used. Certainly, endeavouring to take account of the complex processes of reciprocal causation between appraisal, coping, and affective reactions that occur during acute stress encounters will represent an ongoing challenge for researchers in sport psychology.

Previous coping research has utilised pen and paper questionnaires to capture elements of the transactional model of stress (e.g., Carver et al., 1989; Folkman & Lazarus, 1980; Patterson et al., 1990). Larsson et al. (1988) have listed several methodological problems related to self-report measures including social desirability effects, language ambiguity, and memory difficulties in trying to recall past stressful incidents. To minimise the problem of retrospective falsification in the second study, basketball players were asked to report on specific situations immediately following games. Further, as suggested by Ptacek and his colleagues (1994), subjects in the third study were forewarned in advance that they would be expected to monitor their own coping efforts. Thus, concerns about the passage of time affecting accurate recall were reduced.

Finally, it has also been argued that physiological and behavioural assessments should accompany self-report measures of coping (e.g., Auerbach, 1989; Folkman, & Lazarus, 1985). Because of the inconsistent correlations found between these three response modes (e.g., Cook, 1985; Crocker et al., 1988), and the financial and technical difficulties associated with collecting physiological, behavioural, and subjective data simultaneously, previous research has persevered with the use of self-reports. Ultimately, however, self-report data does require verification by other methods.

Theoretical and Practical Implications for Future Research

The findings of the three studies make a significant contribution in, not only helping understand the mechanisms of the coping process in acute stress situations, but also, the development of more effective stress management programs for athletes. Of particular theoretical interest were results indicating support for Lazarus and Folkman's (1984) transactional model of stress and coping, which proposed that both stable and situational factors are influential in the prediction of coping responses. In this respect, situational coping responses in the second study were determined by the enduring characteristics of the individual and their appraisals of the situation. However, this effect was only found for two of the four selected stressful situations investigated. Significantly, for the other two situations, personal dispositions, and not situational appraisals, influenced the athletes' choice of coping strategies. For each of the four situations basketball players were found to have responded in a fashion consistent with their preferred way of coping, thereby justifying the inclusion of approach-avoidance coping styles as a predictor of responses to stress. Such results concur with recent suggestions that: (a) past research in this area has focused too heavily on the role of situational variables (Terry, 1991, 1994), and (b) future research into the coping process should adopt a situation-specific approach (Bolger, 1990; Krohne, 1988).

A number of findings are especially salient for future investigations directed toward developing an inclusive model of the nature and determinants of coping with acute stress, as opposed to chronic stress. Contrary to previous research (e.g., Anderson, 1977; Terry, 1991), findings of the present thesis suggest that athletes will tend to use approach rather than avoidance coping strategies when encountering highly stressful situations. Also, avoidance coping will be favoured over approach coping with episodes perceived as offering opportunities for control. These results highlight the difficulties inherent when attempting to compare acute stress research with research that has, in general failed to distinguish chronic from acute stress.

Future studies examining the role of personal dispositions in predicting coping in sport should carefully consider the appropriateness of the instruments used. Results from the second study revealed few associations between the approach-avoidance coping styles and measures of self-esteem, internal control beliefs, and monitoring-blunting coping styles. While the lack of relationships may have been an accurate reflection of the uniqueness of the population of basketball players used in the three studies, it is also possible that the scales, with the exception of the CSBI, were assessing attributes unrelated to a sporting context. For example, Bandura (1977) distinguished the construct of self-efficacy from terms such as self-confidence and self-esteem. While self-esteem often describes a transsituational trait, self-efficacy appears to be a more situation-specific variable. Consequently, future research might benefit by employing more sport-relevant measures of personal dispositions.

Results from the third study provided partial support for the efficacy of implementing a stress management program to help athletes deal effectively with sources of acute stress. Based on the transactional model of stress, an important function of the intervention was to facilitate positive changes in the athletes' perceptions of control, primary appraisals, affect, and coping efficacy. Following a situation-specific approach, adopted throughout the present three studies, subjects were presented with coping skills that were consistent with their coping style for each of two stressful situations. In response to the stressor, "Losing the Ball," the avoidance coping group realised greater improvements in perceived control, challenge appraisals, and coping efficacy, compared to the control group. The approach coping group also reported greater improvements than the control group for coping efficacy. In response to the second stressor, "Missing an Easy Basket," the avoidance coping group recorded a greater improvement for perceived control compared to the control group. These results suggest that it may be worthwhile distinguishing between approach-oriented and avoidance-oriented components of interventions and to differentially emphasise a given component, as a function of individual differences in coping style.

Additional potential implications are apparent for training athletes to manage their cognitive and behavioural responses to stress. Previous research has advocated the teaching of stress management techniques as a routine (Anshel, 1990b; Boutcher & Rotella, 1987). In accordance with Smith's (1980) recommendations, basketball players learnt, rehearsed, and, finally, implemented an integrated coping response during aversive experiences in competition. This routine allowed the athletes to respond rapidly and efficiently to the source of acute stress with little disruption to immediate performance. Similar routines could be developed for all athletes, irrespective of the sport they participate in or the duration of the stressful experience. Future investigations should also endeavour to incorporate both manipulation checks and motivational-control groups to help validate any improvements observed following an intervention program.

To clarify the processes involved in effective stress management researchers need to remain cognisant of several important issues. First, the approach coping group recorded an improvement in positive affect, but a corresponding increase in negative affect. Findings from previous research has indicated that these effects may be borne from the subjects' increased awareness of their own responses to stressful situations and their coping style. Nonetheless, trying to ascertain the optimal level of anxiety for an athlete when performing represents an ongoing area of sport research (Kerr & Leith, 1993). Second, while the third study included coping effectiveness measures such as situational control beliefs and perceived coping efficacy, ultimately, research needs to assess how these cognitions affect performance. Burton (1990) recommended using intraindividual performance measures to compare an athlete's current performance with his or her average or best previous performance. Appropriate measures could be derived using match analysis techniques (Maynard & Cotton, 1993). These techniques would provide data about various aspects of a player's poststressor performance during competition. Third, to more clearly understand the interactive effects of coping style and situational coping responses, studies are needed to evaluate the differential efficacy of stress management interventions by presenting some athletes with strategies consistent with their preferred coping style while giving other athletes nondesired strategies. Also, as

Miller (1990) suggested, individuals could be taught to discriminate variations in situational factors and to adjust their coping strategies accordingly.

The results of the present thesis have implications for researchers interested in furthering their understanding of the coping process involving acute stress, and for practitioners committed to prescribing individualised coping techniques for athletes to allow them to manage acute stress more effectively. The findings support current conceptualisations of stress that highlight the role of personal dispositions and situational appraisals in predicting coping, but draw attention to the need to identify situation-specific coping styles. The concept of individual differences seems to play an important role when an athlete is choosing a coping strategy, especially in time-limited situations that require an immediate response. Although inconclusive, the present findings also suggest that there is promise in exploring further the efficacy of stress management interventions that are compatible with an individual's disposition. Thus, a goal for future research in sport psychology should involve the generation of intervention programs that take into account the specific characteristics and demands of a particular sport, as well as the athlete's coping style. Participating in programs such as these might allow the athlete to reach his or her performance potential and gain more enjoyment and satisfaction from sport involvement.

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APPENDICES

APPENDIX A

Sources of Acute Stress in Basketball Questionnaire (SASB)

Sources of Acute Stress in Basketball Questionnaire

Name: .....

Age: .....

Team/Grade: .....

How stressful are the following situations to you during a competitive game?

Using the numbering system below please circle the degree of stressfulness you experience following each situation described.

Not at all stressful		Moderately stressful		Very stressful
1	2	3	4	5

1.	An opponent hits me in frustration for his own mistake.	1	2	3	4	5
2.	I receive a fourth foul.	1	2	3	4	5
3.	I miss an outside shot.	1	2	3	4	5
4.	I lose possession of the ball to an opponent.	1	2	3	4	5
5.	An opponent physically abuses me.	1	2	3	4	5
6.	I miss an "easy" basket.	1	2	3	4	5
7.	A teammate misses the basket when I am in a better position to score.	1	2	3	4	5
8.	An injury prevents me from performing a move.	1	2	3	4	5
9.	A teammate verbally abuses the referee.	1	2	3	4	5
10.	My bench fails to warn me that I have collected four fouls and I receive a fifth.	1	2	3	4	5
11.	A teammate misses the basket and our team is not ready in an offensive set for the rebound.	1	2	3	4	5
12.	An opponent keeps me out of the play by playing man to man on me.	1	2	3	4	5
13.	A teammate criticises me for a mistake I made.	1	2	3	4	5
14.	An opponent commits an intentional foul on me.	1	2	3	4	5
15.	My shot is blocked.	1	2	3	4	5
16.	I am responsible for a turnover.	1	2	3	4	5
17.	I decide to force a play and it goes wrong.	1	2	3	4	5

Using the numbering system below please circle the degree of stressfulness you experience following each situation described.

Not at all stressful		Moderately stressful		Very stressful
1	2	3	4	5

18.	I suffer pain or injury on court at the hands of an opponent.	1	2	3	4	5
19.	A teammate fails to stick to a set play allowing the opposition to score.	1	2	3	4	5
20.	My pass is intercepted.	1	2	3	4	5
21.	The player I am marking beats me and scores.	1	2	3	4	5
22.	The referee makes what I thought was a "bad" call on me.	1	2	3	4	5
23.	The referee reverses a decision after prompting by an opposing player.	1	2	3	4	5
24.	An opposition player verbally abuses me.	1	2	3	4	5
25.	The referee makes a "bad" call on one of my teammates.	1	2	3	4	5

THANKYOU FOR YOUR TIME AND ASSISTANCE IN THIS STUDY

APPENDIX B

Factor Analysis of the Coping Strategies in Basketball Inventory (CSBI)

CSBI Scale 1: An Opponent Physically Abuses Me.

Scale Name and Items	Factor Loading
Avoidance Coping	
So that I won't worry, I try not to think about the incident.	.77
I continue playing as though the incident didn't occur.	.76
I treat the incident in a carefree, untroubled way as I refuse to let it bother me.	.74
I try to forget the incident.	.72
I block off my emotions.	.71
I accept since nothing can be done to change the situation.	.68
I don't give it another thought as it's just a part of the game.	.66
I try to keep my feelings from interfering with my game.	.66
I keep my feelings to myself.	.65
I try concentrating on the game rather than think about the incident.	.64
I try to calm myself down.	.45
Approach Coping	
I use the incident to fire myself up.	.72
I use positive self-talk to build up my confidence.	.56
I yell at my opponent to warn him against fouling me again.	.55
I try to think about what I should do in response to the abuse.	.54
I accept sympathy from someone.	.46
I laugh at my opponent to let him know that such abuse will not put me off my game.	.45
I appeal to the referee for the foul.	.40

Note. Only items with factor loadings greater or equal to .40 were retained.

CSBI Scale 2: The Referee Makes What I Thought Was a "Bad" Call on Me.

Scale Name and Items	Factor Loading
Avoidance Coping	
I accept it since nothing can be done to change the situation.	.72
I don't give it another thought as "bad" calls are just a part of the game.	.72
I ignore the call and get on with the game.	.71
So that I won't worry, I try not to think about the call.	.70
I try to keep my feelings from interfering with my game.	.66
I block off my emotions.	.62
I keep my feelings to myself.	.62
I treat the incident in a carefree, untroubled way as I refuse to let it bother me.	.60
I try concentrating on the game rather than think about the call.	.60
I try to forget the incident.	.59
I try to calm myself down.	.40
Approach Coping	
I think about how I should change my play so as to avoid receiving similar calls in future.	.68
I try to learn from the experience by analysing what I did wrong.	.65
I try to look at the incident from the referee's perspective to understand why he called a foul.	.52
I use positive self-talk to build up my confidence.	.51
I accept sympathy from someone (e.g., a pat on the back or a word of encouragement).	.49

Note. Only items with factor loadings greater or equal to .40 were retained.

CSBI Scale 3: I Miss an Easy Basket.

Scale Name and Items	Factor Loading
Avoidance Coping	
I keep my feelings to myself.	.66
I treat the incident in a carefree, untroubled way as I refuse to let it bother me.	.65
I don't give it another thought as making errors is just a part of the game.	.62
I block off my emotions.	.61
I accept it since nothing can be done to change the situation.	.58
I try to forget the error.	.56
I try concentrating on the game rather than think about the error.	.56
I try to keep my feelings from interfering with my game.	.56
So that I won't worry, I try not to think about the error.	.49
I put the error down to bad luck.	.48
I accept it as one of those days when everything goes wrong.	.41
Approach Coping	
I think about how I should have performed the skill correctly.	.72
I tell myself that next time I won't make the same mistake.	.69
I tell myself to try harder when performing the same skill in future.	.66
I think about the options that I should have used prior to making the error (e.g, passing to a teammate instead of having a shot).	.64
I use positive self-talk to build up my confidence.	.61
I try to learn from the experience by analysing what I did wrong.	.59
I use the error to fire myself up.	.48
I try to correct my mistake by trying to reclaim the ball.	.47

Note. Only items with factor loadings greater or equal to .40 were retained.

CSBI Scale 4: I Lose Possession of the Ball to an Opponent.

Scale Name and Items	Factor Loading
Avoidance Coping	
I don't give it another thought as such incidents are just a part of the game.	.69
So that I won't worry, I try not to think about the incident.	.69
I block off my emotions.	.64
I try concentrating on the game rather than think about the incident.	.61
I try to forget the incident.	.58
I treat the incident in a carefree, untroubled way as I refuse to let it bother me.	.58
I keep my feelings to myself.	.54
I try to keep my feelings from interfering with my game.	.54
I accept it since nothing can be done to change the situation.	.53
I try to calm myself down.	.53
Approach Coping	
I think about how I should have performed the skill correctly.	.77
I tell myself to try harder when performing the same skill in future.	.75
I try to learn from the experience by analysing what I did wrong.	.64
I begin to analyse my opponent's performance technique or strategy.	.59
I think about the options that I should have used prior to losing possession of the ball (e.g, passing the ball earlier than I did).	.57
I use the incident to fire myself up.	.45
I use positive self-talk to build up my confidence.	.42
I try to correct my mistake by trying to reclaim the ball.	.40

Note. Only items with factor loadings greater or equal to .40 were retained.

APPENDIX C

Personal Disposition Questionnaires (PDQ)

UNIVERSITY OF WOLLONGONG
Department of Psychology

Dear Participant,

My name is Bruce Wells and I am a doctoral student at the University of Wollongong. I am conducting research to assess how basketball players deal with acute stressors on court. As such I am asking players to complete the following questionnaires. Remember, that to be eligible for the $100 lottery prize you need to return the **completed** questionnaires in the prepaid envelope (provided) within the next two weeks. The winner will be randomly picked from the participants in this study and notified at the basketball stadium by the end of May.

One of the conditions of this study is that when filling out the questionnaires do not discuss your answers with anyone else. Rather, answer the questions in the way which you believe is a true representation of yourself. There are no "right" or "wrong" answers.

Enclosed are four questionnaires and a general information sheet. The **last page** is the general information sheet. Please complete all of the questionnaires. Remember to indicate your personal code number which I gave you the other night. This will allow me to match your questionnaire answers with the answers you gave me at the game. The information gathered from this study will be held in strict confidence, and will not be used in a way to identify you. If you would like to know your results from this study indicate so on the last page and I will send you a summary in the mail.

If for whatever reason you need to contact me you can reach me during the day on (042) 264 536. Thank you for your time and assistance in this study.

(This research has been approved by the Ethics Committee of the University of Wollongong).

PLEASE TURN OVER THE PAGE TO BEGIN

QUESTIONNAIRE 1

PLEASE TURN OVER THE PAGE TO BEGIN

After experiencing **the stressor** below during basketball games how often do you **usually** use each of the responses? Using the numbering system below please place a number on **every** line in the answer column.

Not used at all	Used sometimes	Used about half the time	Used often	Used all the time
1	2	3	4	5

STRESSOR 1 **After receiving physical abuse from an opponent:**
(e.g., a cheap shot)

ANSWERS

1. I appeal to the referee for the foul. ____
2. I accept sympathy from someone (e.g., a pat on the back or a word of encouragement). ____
3. I use positive self-talk to build up my confidence. ____
4. I continue playing as though the incident didn't occur. ____
5. I try to forget the incident. ____
6. I block off my emotions. ____
7. I try to think about what I should do in response to the abuse. ____
8. I accept it since nothing can be done to change the situation. ____
9. I yell at my opponent to warn him against fouling me again. ____
10. I keep my feelings to myself. ____
11. I laugh at my opponent to let him know that such abuse will not put me off my game. ____
12. I don't give it another thought as it's just a part of the game. ____
13. I treat the incident in a carefree, untroubled way as I refuse to let it bother me. ____
14. So that I won't worry, I try not to think about the incident. ____
15. I use the incident to fire myself up. ____
16. I try concentrating on the game rather than think about the incident. ____
17. I try to calm myself down. ____
18. I try to keep my feelings from interfering with my game. ____

After experiencing **the stressor** below during basketball games how often do you **usually** use each of the responses? Using the numbering system below please place a number on **every** line in the answer column.

Not used at all	Used sometimes	Used about half the time	Used often	Used all the time
1	2	3	4	5

STRESSOR 2 **After receiving what I thought was a "bad" call from the referee:**

ANSWERS

1. I block off my emotions. ____
2. I try to learn from the experience by analysing what I did wrong. ____
3. I accept it since nothing can be done to change the situation. ____
4. I don't give it another thought as "bad" calls are just a part of the game. ____
5. I use positive self-talk to build up my confidence. ____
6. I try to look at the incident from the referee's perspective to understand why he called a foul. ____
7. I think about how I should change my play so as to avoid receiving similar calls in future. ____
8. I try to calm myself down. ____
9. I ignore the call and get on with the game. ____
10. I try to keep my feelings from interfering with my game. ____
11. I treat the incident in a carefree, untroubled way as I refuse to let it bother me. ____
12. I try to forget the incident. ____
13. So that I won't worry, I try not to think about the call. ____
14. I try concentrating on the game rather than think about the call. ____
15. I accept sympathy from someone (e.g., a pat on the back or a word of encouragement). ____
16. I keep my feelings to myself. ____

After experiencing **the stressor** below during basketball games how often do you **usually** use each of the responses? Using the numbering system below please place a number on **every** line in the answer column.

Not used at all	Used sometimes	Used about half the time	Used often	Used all the time
1	2	3	4	5

STRESSOR 3 **After missing an "easy" basket:**

ANSWERS

1. I try to learn from the experience by analysing what I did wrong. ____
2. I block off my emotions. ____
3. I tell myself that next time I won't make the same mistake. ____
4. I accept it since nothing can be done to change the situation. ____
5. I try to forget the error. ____
6. I treat the incident in a carefree, untroubled way as I refuse to let it bother me.
7. I think about the options that I should have used prior to making the error (e.g, passing to a teammate instead of having a shot). ____
8. I put the error down to bad luck. ____
9. I try concentrating on the game rather than think about the error. ____
10. I accept it as one of those days when everything goes wrong. ____
11. I don't give it another thought as making errors is just a part of the game. ____
12. I try to correct my mistake by trying to reclaim the ball. ____
13. So that I won't worry, I try not to think about the error. ____
14. I tell myself to try harder when performing the same skill in future. ____
15. I keep my feelings to myself. ____
16. I try to keep my feelings from interfering with my game. ____
17. I use the error to fire myself up. ____
18. I use positive self-talk to build up my confidence. ____
19. I think about how I should have performed the skill correctly. ____

After experiencing **the stressor** below during basketball games how often do you **usually** use each of the responses? Using the numbering system below please place a number on **every** line in the answer column.

Not used at all	Used sometimes	Used about half the time	Used often	Used all the time
1	2	3	4	5

STRESSOR 4 **After losing possession of the ball to an opponent:**

ANSWERS

1. I use positive self-talk to build up my confidence. ____
2. I try to keep my feelings from interfering with my game. ____
3. I accept it since nothing can be done to change the situation. ____
4. I block off my emotions. ____
5. I begin to analyse my opponent's performance technique or strategy. ____
6. I try to forget the incident. ____
7. I tell myself to try harder when performing the same skill in future. ____
8. I try to calm myself down. ____
9. I keep my feelings to myself. ____
10. I try to correct my mistake by trying to reclaim the ball. ____
11. I try concentrating on the game rather than think about the incident. ____
12. I don't give it another thought as such incidents are just a part of the game. ____
13. So that I won't worry, I try not to think about the incident. ____
14. I try to learn from the experience by analysing what I did wrong. ____
15. I treat the incident in a carefree, untroubled way as I refuse to let it bother me. ____
16. I use the incident to fire myself up. ____
17. I think about how I should have performed the skill correctly. ____
18. I think about the options that I should have used prior to losing possession of the ball (e.g., passing the ball earlier than I usually do). ____

PLEASE TURN OVER THE PAGE AND CONTINUE

QUESTIONNAIRE 2

PLEASE READ THE INSTRUCTIONS CAREFULLY, AS THE RESPONSE PROCEDURE VARIES SLIGHTLY BETWEEN THE QUESTIONNAIRES

PLEASE TURN OVER THE PAGE AND CONTINUE

Please read each statement carefully, and then record the number which indicates how you feel in response to each statement in the answer column. The numbers run from 1 (strongly disagree) to 4 (strongly agree).

strongly disagree	disagree	agree	strongly agree
1	2	3	4

ANSWERS

1. On the whole, I am satisfied with myself. ____
2. At times I think I am no good at all. ____
3. I feel that I have a number of good qualities. ____
4. I am able to do things as well as most other people. ____
5. I feel I do not have much to be proud of. ____
6. I certainly feel useless at times. ____
7. I feel that I am a person of worth, at least on an equal plane with others. ____
8. I wish I could have more respect for myself. ____
9. All in all, I am inclined to to feel that I am a failure. ____
10. I take a positive attitude toward myself. ____

PLEASE TURN OVER THE PAGE AND CONTINUE

QUESTIONNAIRE 3

PLEASE READ THE INSTRUCTIONS CAREFULLY, AS THE RESPONSE PROCEDURE VARIES SLIGHTLY BETWEEN THE QUESTIONNAIRES

PLEASE TURN OVER THE PAGE AND CONTINUE

Please read each statement carefully, and then record the number which indicates how you feel in response to each statement in the answer column. The numbers run from 1 (strongly disagree) to 6 (strongly agree).

strongly disagree	disagree somewhat	slightly disagree	slightly agree	agree somewhat	strongly agree
1	2	3	4	5	6

ANSWERS

1. Whether or not I get to be a leader depends mostly on my ability. ____
2. To a great extent my life is controlled by accidental happenings. ____
3. I feel like what happens in my life is mostly determined by powerful people. ____
4. Whether or not I get into a car accident depends mostly on how good a driver I am. ____
5. When I make plans, I am almost certain to make them work. ____
6. Often there is no chance of protecting my personal interests from bad luck happenings. ____
7. When I get what I want, it's usually because I'm lucky. ____
8. Although I may have good ability, I will not be given leadership responsibility without appealing to those in positions of power. ____
9. How many friends I have depends on how nice a person I am. ____
10. I have often found that what is going to happen will happen. ____
11. My life is chiefly controlled by powerful others. ____
12. Whether or not I get into a car accident is mostly a matter of luck. ____
13. People like myself have very little chance of protecting our personal interests when they conflict with those of strong pressure groups. ____
14. It's not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune. ____
15. Getting what I want requires pleasing those people above me. ____
16. Whether or not I get to be a leader depends on whether I'm lucky enough to be in the right place at the right time. ____
17. If important people were to decide they didn't like me, I probably wouldn't make many friends. ____
18. I can pretty much determine what will happen in my life. ____
19. I am usually able to protect my personal interests. ____

Please read each statement carefully, and then record the number which indicates how you feel in response to each statement in the answer column. The numbers run from 1 (strongly disagree) to 6 (strongly agree).

strongly disagree	disagree somewhat	slightly disagree	slightly agree	agree somewhat	strongly agree
1	2	3	4	5	6

ANSWERS

20. Whether or not I get into a car accident depends mostly on the other driver. ____
21. When I get what I want, it's usually because I worked hard for it. ____
22. In order to have my plans work, I make sure that they fit in with the desires of people who have power over me. ____
23. My life is determined by my own actions. ____
24. It's chiefly a matter of fate whether or not I have a few friends or many friends. ____

PLEASE TURN OVER THE PAGE AND CONTINUE

QUESTIONNAIRE 4

PLEASE READ THE INSTRUCTIONS CAREFULLY, AS THE RESPONSE PROCEDURE VARIES SLIGHTLY BETWEEN THE QUESTIONNAIRES

PLEASE TURN OVER THE PAGE AND CONTINUE

Please read each statement carefully and if you agree with the statement, then tick the "**yes**" column. If you disagree with the statement, tick the "**no**" column.

1) Vividly imagine that you are afraid of the dentist and have to get some dental work done. Which of the following would you do?

	YES	NO
I would ask the dentist exactly what he was going to do.	___	___
I would take a tranquiliser or have a drink before going.	___	___
I would try to think about pleasant memories.	___	___
I would want the dentist to tell me when I would feel pain.	___	___
I would try to sleep.	___	___
I would watch all the dentist's movements and listen for the sound of his drill.	___	___
I would watch the flow of water from my mouth to see if it contained blood.	___	___
I would do mental puzzles in my mind.	___	___

2) Vividly imagine that you are being held hostage by a group of armed terrorists in a public building. Which of the following would you do?

	YES	NO
I would sit by myself and have as many daydreams and fantasies as I could.	___	___
I would stay alert and try to keep myself from falling asleep.	___	___
I would exchange life stories with the other hostages.	___	___
If there was a radio present, I would stay near it and listen to the bulletins about what the police were doing.	___	___
I would watch every movement of my captors and keep an eye on their weapons.	___	___
I would try to sleep as much as possible.	___	___
I would think about how nice it's going to be when I get home.	___	___
I would make sure I knew where every possible exit was.	___	___

Please read each statement carefully and if you agree with the statement, then tick the "yes" column. If you disagree with the statement, tick the "no" column.

3) Vividly imagine that, due to a large drop in sales, it is rumoured that several people in your department at work will be laid off. Your supervisor has turned in an evaluation of your work for the past year. The decision about lay-offs has been made and will be announced in several days. Which of the following would you do?

	YES	NO
I would talk to my fellow workers to see if they knew anything about what the supervisor's evaluation of me said.	___	___
I would review the list of duties for my present job and try to figure out if I had fulfilled them all.	___	___
I would go to the movies to take my mind off things.	___	___
I would try to remember any arguments or disagreements I might have had with the supervisor that would have lowered his opinion of me.	___	___
I would push all thoughts of being laid off out of my mind.	___	___
I would tell my spouse that I'd rather not discuss my chances of being laid off.	___	___
I would try to think which employees in my department the supervisor might have thought had done the worst job.	___	___
I would continue doing my work as if nothing special was happening.	___	___

4) Vividly imagine that you are on an aeroplane, thirty minutes from your destination, when the plane unexpectedly goes into a deep dive and then suddenly levels off. After a short time, the pilot announces that nothing is wong, although the rest of the ride may be rough. You, however, are not convinced that all is well. Which of the following would you do?

	YES	NO
I would carefully read the information about safety features in the plane and make sure I knew where the emergency exits were.	___	___
I would make small talk with the passenger beside me.	___	___
I would watch the end of the movie, even if I had seen it before.	___	___
I would call for the stewardess and ask her exactly what the problem was.	___	___
I would listen carefully to the engines for unusual noises and would watch the crew to see if their behaviour was out of the ordinary.	___	___
I would talk to the passenger beside me about what might be wrong.	___	___
I would settle down and read a book or magazine or write a letter.	___	___
I would order a drink or tranquilizer from the stewardess.	___	___

PLEASE TURN OVER THE PAGE AND CONTINUE

GENERAL INFORMATION SHEET

PLEASE PRINT CLEARLY

1. Code number: _____
2. Age: _____
3. Name of your basketball team: _____
4. Competition grade of your team: _____

5. Would you like me to send you a summary of your results? yes/no
   If yes, place your address in the space below.

   name _____
   street _____
   suburb _____
   state _____
   postcode _____

THANKYOU FOR YOUR TIME AND ASSISTANCE IN THIS STUDY

APPENDIX D

Game Questionnaires (GQ)

Game Questionnaires

STRESSOR 1 **After receiving physical abuse from an opponent: (e.g., a cheap shot)**

ANSWERS

Not at all	A little bit	Moderately	Quite a lot	Very
1	2	3	4	5

1. To what extent did you feel stressed? ____
2. To what extent did you feel challenged (i.e., pumped up, confident, alert, eager)? ____
3. To what extent did you feel threatened (i.e., disappointed, irritated, uncertain, worried, anxious)? ____

Not at all	A little bit	Moderately	Quite a lot	Very much
1	2	3	4	5

4. To what extent did you believe that you could change or do something about it? ____

5. Circle the **one** response that best represents how you handled the incident.

I appealed to the referee for the foul.

I accepted sympathy from someone (e.g., a pat on the back or a word of encouragement).

I used positive self-talk to build up my confidence.

I continued playing as though the incident didn't occur.

I tried to forget the incident.

I blocked off my emotions.

I tried to think about what I should do in response to the abuse.

I accepted it since nothing could be done to change the situation.

I yelled at my opponent to warn him against fouling me again.

I kept my feelings to myself.

I laughed at my opponent to let him know that such abuse would not put me off my game.

I didn't give it another thought as it's just a part of the game.

I treated the incident in a carefree, untroubled way as I refused to let it bother me.

So that I wouldn't worry, I tried not to think about the incident.

I used the incident to fire myself up.

I tried concentrating on the game rather than think about the incident.

I tried to calm myself down.

I tried to keep my feelings from interfering with my game.

STRESSOR 2 **After receiving what I thought was a "bad" call from the referee:**

ANSWERS

Not at all	A little bit	Moderately	Quite a lot	Very
1	2	3	4	5

6. To what extent did you feel stressed? ____
7. To what extent did you feel challenged (i.e., pumped up, confident, alert, eager)? ____
8. To what extent did you feel threatened (i.e., disappointed, irritated, uncertain, worried, anxious)? ____

Not at all	A little bit	Moderately	Quite a lot	Very much
1	2	3	4	5

9. To what extent did you believe that you could change or do something about it? ____

10. Circle the **one** response that best represents how you handled the incident.

I tried to learn from the experience by analysing what I did wrong.

I accepted sympathy from someone (e.g., a pat on the back or a word of encouragement).

I used positive self-talk to build up my confidence.

I tried to look at the incident from the referee's perspective to understand why he called a foul.

I thought about how I should change my play so as to avoid receiving similar calls in future.

I tried to forget the incident.

I blocked off my emotions.

I accepted it since nothing could be done to change the situation.

I kept my feelings to myself.

I ignored the call and got on with the game.

I didn't give it another thought as bad calls are just a part of the game.

I treated the incident in a carefree, untroubled way as I refused to let it bother me.

So that I wouldn't worry, I tried not to think about the call.

I tried concentrating on the game rather than think about the call.

I tried to calm myself down.

I tried to keep my feelings from interfering with my game.

STRESSOR 3 **After missing an "easy" basket:**

ANSWERS

Not at all	A little bit	Moderately	Quite a lot	Very
1	2	3	4	5

11. To what extent did you feel stressed? ____
12. To what extent did you feel challenged (i.e., pumped up, confident, alert, eager)? ____
13. To what extent did you feel threatened (i.e., disappointed, irritated, uncertain, worried, anxious)? ____

Not at all	A little bit	Moderately	Quite a lot	Very much
1	2	3	4	5

14. To what extent did you believe that you could change or do something about it? ____

15. Circle the **one** response that best represents how you handled the incident.

I tried to learn from the experience by analysing what I did wrong.

I used positive self-talk to build up my confidence.

I told myself that next time I wouldn't make the same mistake.

I thought about how I should have performed the skill correctly.

I tried to correct my mistake by trying to reclaim the ball.

I blocked off my emotions.

I tried to forget the error.

I put the error down to bad luck.

I used the error to fire myself up.

I accepted it since nothing could be done to change the situation.

I accepted it as one of those days when everything goes wrong.

I thought about the options that I should have used prior to making the error (e.g., passing to a teammate instead of having a shot).

I kept my feelings to myself.

I didn't give it another thought as making errors is just a part of the game.

I treated the incident in a carefree, untroubled way as I refused to let it bother me.

So that I wouldn't worry, I tried not to think about the error.

I tried concentrating on the game rather than think about the error.

I told myself to try harder when performing the same skill in future.

I tried to keep my feelings from interfering with my game.

STRESSOR 4 **After losing possession of the ball to an opponent:**

ANSWERS

Not at all	A little bit	Moderately	Quite a lot	Very
1	2	3	4	5

16. To what extent did you feel stressed? ____
17. To what extent did you feel challenged (i.e., pumped up, confident, alert, eager)? ____
18. To what extent did you feel threatened (i.e., disappointed, irritated, uncertain, worried, anxious)? ____

Not at all	A little bit	Moderately	Quite a lot	Very much
1	2	3	4	5

19. To what extent did you believe that you could change or do something about it? ____

20. Circle the **one** response that best represents how you handled the incident.

I tried to learn from the experience by analysing what I did wrong.
I used positive self-talk to build up my confidence.
I thought about how I should have performed the skill correctly.
I tried to correct my mistake by trying to reclaim the ball.
I blocked off my emotions.
I tried to forget the incident.
I began to analyse my opponent's performance technique or strategy.
I used the incident to fire myself up.
I accepted it since nothing could be done to change the situation.
I thought about the options that I should have used prior to making the error (e.g., passing the ball earlier than I did).
I kept my feelings to myself.
I didn't give it another thought as such incidents are just a part of the game.
I treated the incident in a carefree, untroubled way as I refused to let it bother me.
So that I wouldn't worry, I tried not to think about the incident.
I tried concentrating on the game rather than think about the incident.
I told myself to try harder when performing the same skill in future.
I tried to keep my feelings from interfering with my game.
I tried to calm myself down.

APPENDIX E

Game Sheets

Game Sheets

INCIDENT 1 After losing possession of the ball to an opponent:

1. How did you feel?

The words below describe feelings. Look at each word in turn and ask yourself to what degree you felt that word. Now draw a circle around one of the four options beside the word. For example, if you definitely felt relaxed circle the double plus (+ +). If you felt slightly relaxed circle the single plus (+). If you cannot decide how relaxed you felt circle the question mark (?). If you definitely did not feel relaxed circle the minus (-). Make sure you circle every word.

JITTERY	+ +	+	?	-	UPTIGHT	+ +	+	?	-
CALM	++	+	?	-	RESTFUL	++	+	?	-
DISTRESSED	++	+	?	-	CHEERFUL	++	+	?	-
RELAXED	++	+	?	-	APPREHENSIVE	++	+	?	-
CONTENTED	++	+	?	-	PEACEFUL	++	+	?	-
TENSE	++	+	?	-	DEJECTED	++	+	?	-
UNEASY	++	+	?	-	NERVOUS	++	+	?	-
BOTHERED	++	+	?	-	PLEASANT	++	+	?	-
WORRIED	++	+	?	-	COMFORTABLE	++	+	?	-

Not at all	A little bit	Moderately	Quite a lot	Very much
1	2	3	4	5

ANSWERS

2. To what extent did you feel challenged, that is, you felt pumped up, confident, alert, or eager? ____

3. To what extent did you feel threatened, that is, you felt disappointed, irritated, uncertain, worried, or anxious? ____

4. To what extent did you believe that you could do something to prevent stressful feelings from negatively affecting your game or from distracting you from your game? ____

5. To what extent did you believe that you could do something to prevent the incident from negatively affecting your game or from distracting you from your game? ____

6. To what extent did you believe that you could reduce or manage your emotional stress and resume play? ____

7. How effective was your coping strategy or routine in helping you deal with the incident? ____

INCIDENT 2 After missing an easy basket:

8. How did you feel?

The words below describe feelings. Look at each word in turn and ask yourself to what degree you felt that word. Now draw a circle around one of the four options beside the word. For example, if you definitely felt relaxed circle the double plus (+ +). If you felt slightly relaxed circle the single plus (+). If you cannot decide how relaxed you felt circle the question mark (?). If you definitely did not feel relaxed circle the minus (-). Make sure you circle every word.

JITTERY	+ +	+	?	-	UPTIGHT	+ +	+	?	-
CALM	++	+	?	-	RESTFUL	++	+	?	-
DISTRESSED	++	+	?	-	CHEERFUL	++	+	?	-
RELAXED	++	+	?	-	APPREHENSIVE	++	+	?	-
CONTENTED	++	+	?	-	PEACEFUL	++	+	?	-
TENSE	++	+	?	-	DEJECTED	++	+	?	-
UNEASY	++	+	?	-	NERVOUS	++	+	?	-
BOTHERED	++	+	?	-	PLEASANT	++	+	?	-
WORRIED	++	+	?	-	COMFORTABLE	++	+	?	-

ANSWERS

Not at all	A little bit	Moderately	Quite a lot	Very much
1	2	3	4	5

9. To what extent did you feel challenged, that is, you felt pumped up, confident, alert, or eager? ____

10. To what extent did you feel threatened, that is, you felt disappointed, irritated, uncertain, worried, or anxious? ____

11. To what extent did you believe that you could do something to prevent stressful feelings from negatively affecting your game or from distracting you from your game? ____

12. To what extent did you believe that you could do something to prevent the incident from negatively affecting your game or from distracting you from your game? ____

13. To what extent did you believe that you could reduce or manage your emotional stress and resume play? ____

14. How effective was your coping strategy or routine in helping you deal with the incident? ____

APPENDIX F

Stress Management Intervention Worksheets for Experimental Subjects

STRESS MANAGEMENT PROGRAM

Workshop 1

The Arousal-Performance Relationship in Sport

1. Anxiety

   Refers to conscious feelings of apprehension and tension due mainly to the athlete's perceptions of the present or upcoming situation as threatening.

2. Arousal

   Refers to the intensity of physiological activation, and does not indicate emotions. For example, both fear and joy cause an increase in physiological arousal. However, fear is associated with negative affect, whereas joy is associated with positive affect.

3. Stress

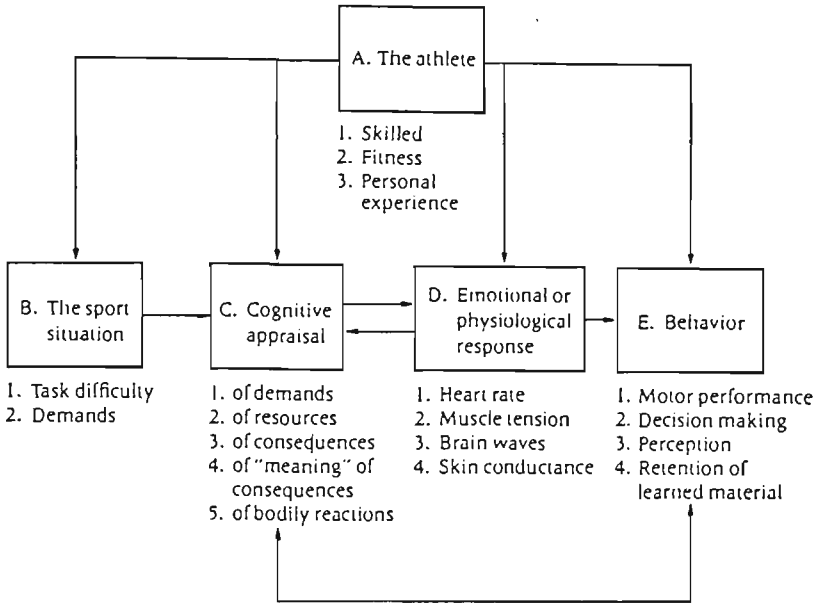


Figure 1. Factors Affecting the Arousal-performance Relationship

From "Arousal-performance relationships" by Landers, D.M. & Boutcher, S.H., 1986, in J.M.Williams (Ed.), Applied sport psychology: Personal growth to peak performance, (p. 166), Mountain View, CA: Mayfield.

A. The athlete's experience at a certain competition level will affect his response, as will his personal skill and fitness levels.

B. The situation may be external or internal in origin. An external situation could be missing an "easy" basket or losing possession of the ball to an opponent, while an internal situation could involve thoughts or memories.

C. This is when you make subjective judgements about the nature and meaning of the situation and about your ability to cope successfully with it.

D. How you appraise the situation and what you said to yourself will lead to an emotional or physiological response. This might, in turn, lead to you appraising your feelings which can create even more worry and apprehension.
E. At this time you will make a behavioural response to try and deal with your feelings.

4. Stressful Situations in Basketball

Stressor (situation)	Self-Talk (perception)	Emotional/Physiological Response	Behavioural Response
Missing an easy basket	"How did I miss that?" "What an idiot I am - I'm in for a long night"	Discouragement, rejection increased heart rate	Give up, lose chuck in the towel
Losing possession of the ball to an opponent	"Where the hell did he come from?" "Absolutely pathetic"	Anger, hopelessness increased muscle tension	Get angry and hostile

5. The Inverted-U Relationship

a. Predicts that as arousal increases from drowsiness to alertness, there is a progressive increase in performance. However, once arousal increases beyond a certain point t here is a progressive decrease in task performance.
b. Generally, tasks that require fine motor skills or higher decisional demands require less arousal for optimal performance. For tasks involving gross motor activities or lower decisional demands, higher arousal levels are necessary.
c. High levels of arousal impair attentional skills as athletes may be focused too narrowly to detect task-relevant cues.
d. Heightened levels of arousal can impede performance by disrupting an athlete's speed and coordination.

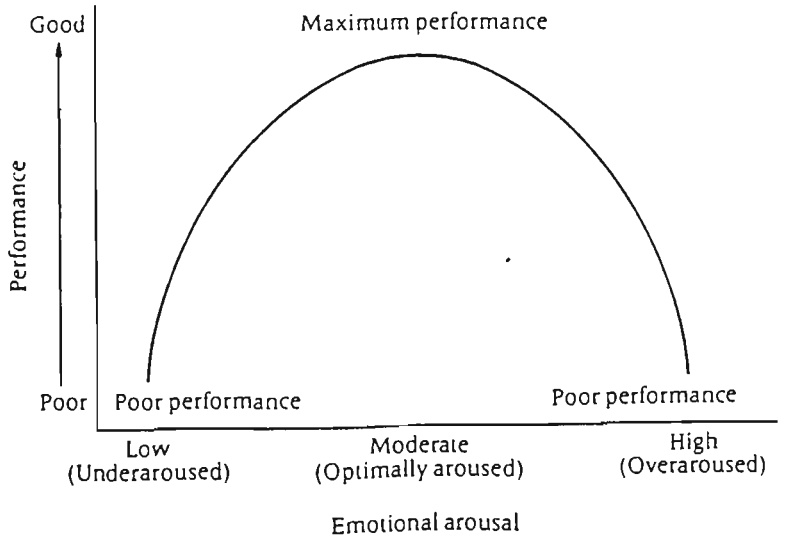


Figure 2. The Inverted-U Relationship Between Arousal and Performance

From "Arousal-performance relationships" by Landers, D.M. & Boutcher, S.H., 1986, in J.M.Williams (Ed.), Applied sport psychology: Personal growth to peak performance. (p. 172), Mountain View, CA: Mayfield.

6. Rationale for Stress Management Training Program

a. Relaxation training to reduce the basketball player's physiological arousal levels.
b. Cognitive restructuring to identify and modify the specific irrational self-statements that cause a basketball player to appraise a situation in a stress-producing manner.
c. Self-instructional training where the basketball player is taught specific self-statements designed to enhance his attentional and task-oriented abilities.

7. Overview of Workshops

Workshop 1 **The Arousal-Performance Relationship in Sport**

The conceptual model of stress discussed in terms of its situational, cognitive, affective, and behavioural components. The arousal-performance relationship discussed as well as the rationale for relaxation training, cognitive restructuring, and self-instructional training. Progressive muscle relaxation training commenced to serve as a physiological coping response.

Workshop 2 **Discovering Self-Talk and Introducing Imagery**

Relaxation training continued and a modified technique practised. Characteristics of effective imagery and the consequences of negative self-talk discussed.

Workshop 3 **Relaxation to Reduce Stress**

Relaxation techniques used to control emotional responses brought on by imagining stressful situations. The role of thought-stoppage and irrational beliefs in the stress process discussed.

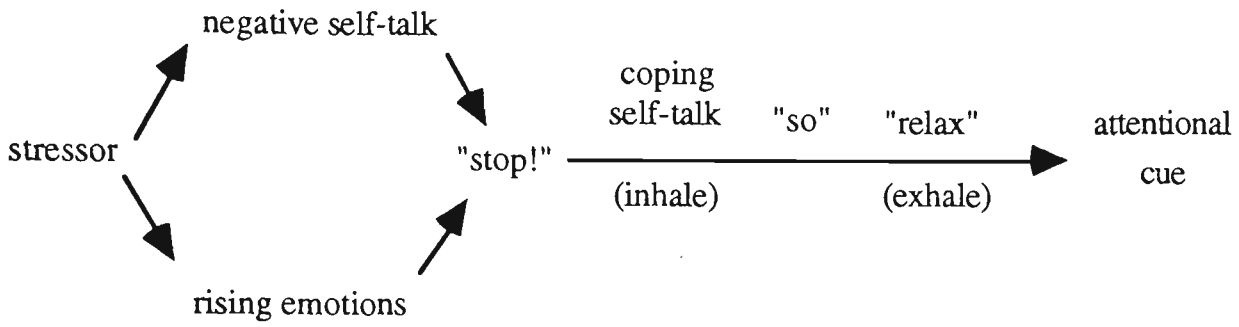
Workshop 4 **Self-Talk Statements to Reduce Stress**

Self-instructional training introduced allowing the development of mental coping responses. Stress-reducing self-talk statements practised to control emotional responses brought on via a guided imagery exercise.

Workshop 5 **The Final Coping Routine**

Attentional cues discussed. Continued practise in the use of coping skills with an emphasis on the development of the entire coping routine: the "integrated coping response," followed by an attentional cue.

8. Final Outcome of Workshops - The Final Coping Routine



9. **Homework**

a. Practise progressive muscle relaxation using Homework Sheet 1A for 20 minutes at least once every day.
b. Keep a record of your relaxation sessions by completing Training Diary Sheet 1B every day.

HOMEWORK SHEET 1A

Progressive Muscle Relaxation Script

Instructions: Follow this script for 20 minutes at least once every day.

1. Find a quiet place where no distractions exist. If cramping occurs in any muscles during the session move the affected muscles to alleviate the cramping, while allowing the rest of the body to remain as relaxed as possible. If any distractions or anxiety-producing thoughts occur simply let them wash over you. Do not try and hold on to them. Try not to fall asleep as you will be depriving yourself of an opportunity to get in touch with your body. Turn the lights off. Get comfortable. If you are sitting in a chair make sure that it provides full support for your entire body, so that as your muscles relax, your limbs do not slip off the chair into uncomfortable positions. If lying on the floor, place your arms at your sides. Any tight clothing or belts should be loosened or removed.

2. Now, take a deep breath....let it out slowly.....and become as relaxed as you can.

3. We are going to move down the body relaxing muscle groups as we go. Let's begin with the muscles of the head. Wrinkle your forehead and scalp as tightly as possible ..... notice the uncomfortable tension in your forehead and scalp ..... hold this tension for 5 seconds ....5....4...3.....2.....1....now let the tension out half way and hold for an additional 5 seconds.....5.....4.....3.....2.....1.....notice the decrease in tension but also concentrate on the tension that is still present.....relax your forehead and scalp completely.....notice how the tension and discomfort drain from these areas and are replaced by sensations of comfort and relaxation.....focus on the contrast between the tension you felt and the relaxation you now feel.....now, once more tense the muscles in your forehead and scalp.....hold this tension for 5 seconds .....5..... 4 .....3.....2.....1....let the tension out half way and hold for an additional 5 seconds .....5.....4.....3.....2.1.....relax your forehead and scalp completely.....enjoy the feeling of comfort and relaxation that has come over that area.....

4. We are now going to continue this process with all of the other major muscle groups in your body. With your eyes closed, squint and rotate your eyeballs upward as if you were looking up.....hold this tension for 5 seconds.....count on your own.....then release it half way for an additional 5 seconds.....and.....relax.....relax your eyes completely.....now repeat this process.....with your eyes closed, squint and rotate your eyeballs upward as if you were looking up.....hold this tension for 5 seconds .....then release it half way for an additional 5 seconds .....and ..... relax .....relax your eyes completely.....focus on the relaxation developing in your eyes and also concentrate on relaxing your other facial muscles.....good.....

5. Tense your tongue by pushing it into the roof of your mouth as hard as you can ..... hold this tension for 5 seconds.....let the tension out half way and hold for an additional 5 seconds.....and relax.....repeat this process on your own.....relax your tongue completely.....

6. Clench your teeth and notice the tension in the muscles of your jaws.....hold this for 5 seconds.....let the tension out half way for another 5 seconds.....and relax .....repeat this process on your own. Let your mouth relax completely with your lips slightly parted.....concentrate on totally relaxing these muscles for 10 seconds.....

7. Let's move on to the muscles of the torso. Push your shoulders back as far as possible so as to tense your back muscles.....let the tension out half way after 5 seconds .....hold the reduced tension, and focus on it carefully for an additional 5 seconds .....relax.....repeat.....relax.....relax your shoulder and back muscles completely.....focus on the spreading relaxation until they are completely relaxed.....

8. Tense your upper arms for 5 seconds.....really focus on this feeling of tension ..... let the tension out half way for an additional 5 seconds.....focus on the tension that is still present in your arms.....relax.....repeat.....relax.....relax your upper arms completely for 10 seconds and focus carefully on the developing relaxation .....let your arms rest limply by your sides.....

9. Raise your arms and extend them in front of you.....make a fist with both hands as tightly as you can.....notice the uncomfortable tension in your hands and fingers .....hold the tension for 5 seconds.....let the tension out half way and hold for another 5 seconds.....relax.....repeat.....relax.....let your hands relax completely .....notice how the tension and discomfort drain from your hands and are replaced by sensations of warmth and relaxation.....focus on the contrast between the tension you felt and the relaxation you now feel.....

10. Press the palms of your hands together and push so as to tense the chest and shoulder muscles.....hold for 5 seconds.....let the tension out halfway for 5 seconds ..... relax.....repeat.....relax.....relax the muscles completely and concentrate on the relaxation until your muscles are completely loose and relaxed.....

11. Tense your stomach muscles as hard as possible for 5 seconds and concentrate on the tension.....let the tension out half way for 5 seconds .....relax .....repeat .....relax .....relax your stomach muscles completely.....focus on the spreading relaxation until your stomach muscles are completely relaxed.....

12. Tense your buttocks for 5 seconds.....let the tension out half way for 5 seconds .....relax.....repeat.....relax.....relax your buttocks completely and focus on the sensations of heaviness and relaxation.....spend 20 seconds trying to concentrate on relaxing the other muscle groups you have already dealt with.....

13. Extend your legs and raise them about 10 centimetres above the floor and tense your thigh muscles.....hold this tension for 5 seconds.....let it out half way for 5 more seconds.....relax.....repeat.....relax.....relax your thighs completely.....

14. Point your toes away from you and tense your feet and calves.....hold this tension hard for 5 seconds.....let it out half way for 5 seconds.....relax .....repeat. .....relax .....relax your feet and calves completely for 15 seconds.....curl your toes as hard as possible.....hold for 5 seconds.....relax the toes half way.....relax .....repeat .....relax.....relax your toes completely and feel the relaxation spreading into your toes.....

15. Spend 30 seconds on your own now checking every part of your body for any remaining tension.....as you relax parts of your body feel the tension flowing away.

16. To finish your relaxation session take a series of short inhalations, about 1 per second, until your chest is filled.....hold this for 5 seconds.....then exhale slowly for about 10 seconds.....think about the tension leaving your body as you slowly let out your breath.....repeat this process 4 more times, each time trying to deepen the state of relaxation that you're experiencing.....

17. Rest for a few moments and when ready open your eyes and slowly stand up.

TRAINING DIARY SHEET 1B

Date: .....

Progressive Muscle Relaxation

1. Length of practice session using relaxation script: .....

2. How relaxed were you after the practice session? 1 2 3 4 5 6 7
   (1=not relaxed at all, 7=extremely relaxed)

3. Describe your perceived breathing rate. 1 2 3 4 5 6 7
   (1=extremely low, 7=extremely high)

4. Did you have any difficulty dealing with distractions? 1 2 3 4 5 6 7
   (1=not at all, 7=very much so)

5. Did you experience cramp at any stage? yes / no
   If yes, how did you deal with the cramp?

_____

Additional comments.

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Workshop 2

Discovering Self-Talk and Introducing Imagery

1. Homework

a. Examine Training Diary Sheet 1B.
Progressive muscle relaxation. Any problems? Was it effective in relaxing you?

2. Self-Talk

a. If negative, self-talk can disrupt concentration and affect your performance.
b. Identify self-talk using introspection, imagery, and self-talk logs.

3. Self-Talk Categories in Sport

a. Worry about your past performance.
b. Inability to make a decision because you keep considering past alternatives.
c. Becoming preoccupied with the physical symptoms associated with stress.
d. Thinking about the possible consequences of performing poorly.
e. Thoughts of inadequacy.

4. Imagery and its Uses

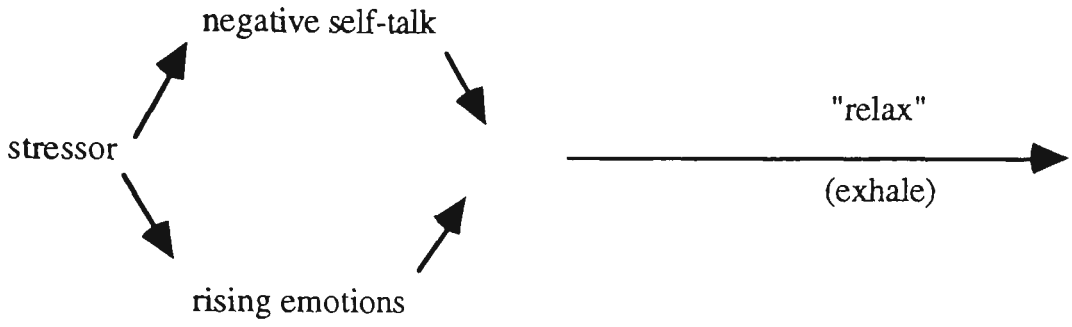
A mental technique that programs the human mind to respond as programmed. Can be very effective in improving sport performance but requires systematic continual practice.

a. Practising or learning physical skills, perceptual skills, psychological skills.
b. Controlling physiological responses.
c. Increasing sport perception and awareness.
d. Overcoming performance problems.
e. Recovering from injury.

5. Recommendations for Using Imagery

a. Imagery must be vivid, controllable, and self-perceptive.
b. Practise mastery versus coping imagery, and imagery from an internal versus an external perspective.
c. Practise imagery with realistic expectations.
d. Use trigger words to facilitate imagery.
e. Use a quiet setting when first learning imagery.
f. Imagine both performance and outcome when practising imagery.
g. Practise imagery from an internal perspective.
h. Keep a record or log of your imagery sessions.

6. Summary of Workshop



7. **Homework**

a. Practise your imagery skills and relaxation skills using the script described on Homework Sheet 2A for 30 minutes at least once every day. First, imagine missing an easy basket and then imagine losing possession of the ball to an opponent.
b. Monitor any occasions when you get stressed using the Training Diary Sheet 2B. Note any self-talk statements you make at these times.
c. Keep a record of your imagery and relaxation practice sessions by completing the Training Diary Sheet 2C every day.

HOMEWORK SHEET 2A

Relaxation and Imagery Script

Instructions: The purpose of this homework assignment is to allow you to begin practising the skill of imagery, a core component of these workshops. In future workshops you will use imagery to simulate basketball situations in your mind. This skill can be a very effective method for rehearsing coping with stressful events but only if practised regularly.

1. Whenever you hold a relaxation or imagery session follow this initial protocol. Find a quiet place where no distractions exist. If cramping occurs in any muscles during the session move the affected muscles to alleviate the cramping, while allowing the rest of the body to remain as relaxed as possible. If any distractions or anxiety-producing thoughts occur simply let them wash over you. Do not try and hold on to them. Try not to fall asleep as you will be depriving yourself of an opportunity to get in touch with your body. Turn the lights off. Get comfortable. If you are sitting in a chair make sure that it provides full support for your entire body, so that as your muscles relax your limbs do not slip off the chair into uncomfortable positions. If lying on the floor, place your arms at your sides. Any tight clothing or belts should be loosened or removed.

2. Now, take a deep breath.....and relax.....let it out slowly.....and become as relaxed as you can.....take 4 more breaths to relax yourself before we begin.

Now, take a deep breath.....and relax.....let it out slowly.....and become as relaxed as you can. For the next 10 minutes you are going to concentrate on becoming totally relaxed. During this period, unlike the previous relaxation exercise, you will not tense any of your muscle groups. Instead, you will begin at your head and moving down your body you will explore each of your muscle groups for signs of tension and simply let it go.....and relax. Today when you become aware of any tension I want you to inhale and then when you exhale say the word "relax" and feel all of the tension drain from the muscle group. Let's begin.

3. Slowly focus your attention on your forehead and the muscles in this area..... wherever there is tension, simply release this tension as you exhale from a deep breath ....."relax".....feel all the tension flowing away and the sensation of relaxation taking its place.....turn your attention to the muscles around the eyes, nose and jaw ..... wherever there is tension, take a deep breath and....."relax".....release the tension as you exhale.....feeling your body completely letting go.....continue this using the same sequence of body parts as was used in Homework Sheet 1A.....

back muscles
upper arm muscles
lower arm and hand muscles
chest and shoulder muscles
buttocks
upper leg muscles
lower leg and foot muscles

4. When you have relaxed the last body part, scan the body for any remaining tension .....take a deep breath and imagine all of the tension flowing away from your body as you exhale....."relax".....you are left feeling completely relaxed.....enjoy this complete calm.....for a few moments.....take four more breaths and after each one say the word "relax" and feel your state of relaxation get deeper and deeper.....

5. As you relax, imagine a blank white screen. On that screen visualise a blue circle - a rich and deep blue circle. Now let the circle gradually fade into a green one. Then, allow the green circle to change to yellow - a smooth, shiny, solid, bright yellow circle. See it change into a dark, rich red circle. Scatter a bunch of small drops of blue in the red circle and watch them bleed into the red, mixing more and more evenly until the circle is a uniform purple. Now, let the purple get darker and darker until it becomes black - a dark, shiny, bottomless black hole. Take the edges of the black circle and square them off so that a black square is left. Let the black square become gray, gradually getting lighter and lighter until your gray becomes white, leaving you with the same white screen with which you began.

6. Now imagine a jug of cordial sitting on a kitchen bench. The jug is three-quarters full. Stick your index finger into the liquid. Notice the movement as your finger breaks the surface, causing ripples to spread out, bouncing off the inside of the walls of the jug. Notice the feel of the cordial - wet, slightly sticky. Bring your finger to your mouth and taste the sweetness of the cordial. Reach into the fridge and take out an ice cube bucket. Fill your fist with ice cubes. Your fingers chill at the touch of the cubes. Release the cubes into the jug of cordial and watch the liquid splash up in slow motion. Pick up a spoon and stir the cordial. Hear the clang of the spoon against the sides of the jug. Watch the whirlpool you have created. Remove the spoon and pour yourself a glass of cordial. Listen to the cordial as it fills your glass. Lift the glass and taste the cordial. Taste it in your mouth and feel it as you swallow again and again.

7. Imagine that you have just arrived at the stadium or centre where you usually play basketball games. See yourself arriving and walking through the main entrance. See the things on the walls and on the floor that you normally see. Look at the colours of these things, the colours of chairs, carpet or tiles. There are other people there. Look at them, the clothes they have on, their body positions. Hear them talking, watch their movements as they talk with their friends. What other sounds can you here?..... Are other people playing on courts?..... Perhaps you can hear the sounds of electric buzzers, the bounce of balls, the sounds of people running. Can you smell anything? ..... Are there any smells coming from the tuckshop?..... Be as detailed as you can with your imagery. Use all of your senses.....You see your teammates beside one of the courts. You walk over to them and exchange greetings. What do you say to them? .....You all begin to get changed for the game.....Open your bag and get your strip out. Get changed the way you normally do. Do it step by step. As you sit down to pull your shoes and socks on feel the cold hard bench under you. Continue to follow the exact routine that you normally follow before a game.....the other team arrives ..... you are looking at them.....what are you thinking?.....what are your teammates saying amongst themselves?.....you and your teammates walk on to the court for your pregame warm-up drills. The ball is in your hands..... examine it closely.....its colour, seams, texture, and any other details you can imagine ..... turn the ball over in your hands.....toss it up in the air and catch it a few times ..... bounce it on the floor and feel the pressure in your hands as you bounce it and as it returns to your hands.....hear it hitting the floor.....pass it to a teammate.....go through your warm-up drills.....see it happening.....feel it happening.....feel yourself moving around the court, passing the ball, receiving the ball, shooting, calling for the ball.....continue to warm up.....

8. Now we are going to return to the classroom. When you are ready begin stretching your arms and legs and wiggle your fingers and toes. Return your breathing to a more normal rhythm and when you are ready open your eyes.

TRAINING DIARY SHEET 2B

Checklist for Stress and Anxiety Indicators

Instructions: Complete this checklist every day. Identify one situation each day of the week in everyday life when you get stressed. For each situation tick the stress signals you used at the time.

	Situation						
Stress Signals	1	2	3	4	5	6	7
Hand clenches	–	–	–	–	–	–	–
Moving body part continuously	–	–	–	–	–	–	–
Headache	–	–	–	–	–	–	–
Neck tenses	–	–	–	–	–	–	–
Backache	–	–	–	–	–	–	–
Shaking hands, tremors	–	–	–	–	–	–	–
Heart pounding or racing	–	–	–	–	–	–	–
Chewing fingernails	–	–	–	–	–	–	–
Excessive sweating	–	–	–	–	–	–	–
Shortness of breath	–	–	–	–	–	–	–
Restless hands or legs	–	–	–	–	–	–	–
Insomnia, disrupted sleep	–	–	–	–	–	–	–
Dry mouth	–	–	–	–	–	–	–
Can't concentrate	–	–	–	–	–	–	–
Negative thoughts	–	–	–	–	–	–	–
Mind racing	–	–	–	–	–	–	–
Having self-doubts	–	–	–	–	–	–	–
Feeling irritable	–	–	–	–	–	–	–

Self-Talk Inventory

Instructions: First, in the box below describe the situations that you identified above. Then, for each of these situations, write down what sort of things you were saying to yourself at the time that made you anxious.

Stressor 1:	Stressor 2:	Stressor 3:	Stressor 4:	Stressor 5:	Stressor 6:	stressor 7:
Self-Talk:	Self-Talk:	Self-Talk:	Self-Talk:	Self-Talk:	Self-Talk:	Self-Talk:

TRAINING DIARY SHEET 2C

Date: .....

Progressive Muscle Relaxation

1. Length of practice session using relaxation script: .....

2. How relaxed were you after saying "relax"? 1 2 3 4 5 6 7
   (1=not relaxed at all, 7=extremely relaxed)

3. Describe your perceived breathing rate. 1 2 3 4 5 6 7
   (1=extremely low, 7=extremely high)

4. Did you have any difficulty dealing with distractions? 1 2 3 4 5 6 7
   (1=not at all, 7=very much so)

5. Did you experience cramp at any stage? yes / no
   If yes, how did you deal with the cramp?

_____

Imagery

6. Length of practice session using imagery script: .....

7. How vivid were your images? 1 2 3 4 5 6 7
   (1=not vivid at all, 7=extremely vivid)

8. How much difficulty did you have controlling your images? 1 2 3 4 5 6 7
   (1=not difficult at all, 7=extremely difficult)

9. How well could you feel the movements of your body? 1 2 3 4 5 6 7
   (1=not well at all, 7=extremely well)

Additional comments.

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_____

Workshop 3

Relaxation to Reduce Stress

1. Homework

a. Identifying stressful situations, stress indicators, and self-talk (Training Diary Sheet 2B).
b. Examine Training Diary Sheet 2C.
Progressive muscle relaxation. Effectiveness in calming you down? Any problems?
Imagery effectiveness. Vividness, controllability, self-perception, internal?

2. Stopping Negative Thinking

a. Disrupting negative thoughts helps you regain the proper focus of attention to the task at hand.
b. Use a trigger word or cue to stop the negative thoughts and clear your mind.

3. Exploring the Rationality of Negative Self-Talk

a. Identify a stressful situation and the mental, emotional, and physiological consequences associated with it.
b. Write down the beliefs causing your emotional disturbance.
c. Did you have a must, should, or ought attached to your belief? If you did then ask yourself the following questions:
   i. Can this belief be rationally supported?
   ii. What evidence exists for the falseness of this belief?
   iii. Does any evidence exist for the truth of this belief?
   iv. What worst things could actually happen to me as a result of this situation?
   v. What good things could come out of this situation?
d. In this way you can develop a new set of rational beliefs that will result in less stress following similar situations in the future.

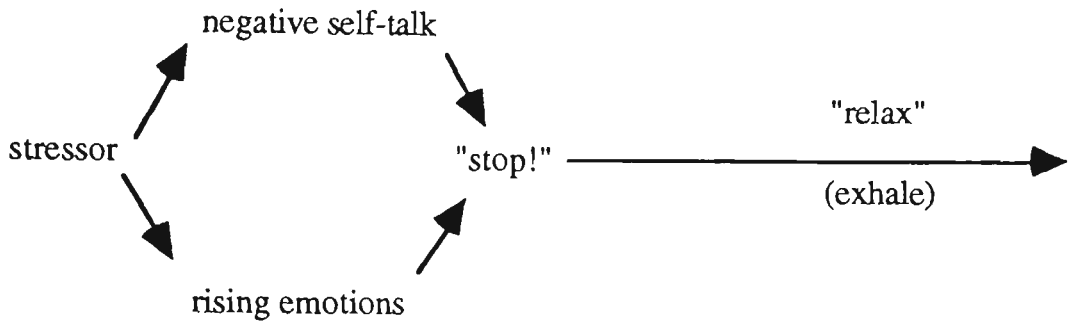
Example Stressor: Missing an Easy Basket

Consequences		
emotional	physiological	mental
Anxiety	Muscle tension	Preoccupation with error
Frustration	Sweating hands	Self-criticism
Disappointment	Elevated breathing rate	Distracted by others

Beliefs

"I must make this basket if our team is to have any chance of winning the game"
"I must drop this basket or my teammates will think I'm hopeless"
"I must be a lousy player to miss a shot like that"

4. Summary of Workshop



5. **Homework**

a. Continue using the Training Diary Sheet 3B to monitor any occasions when you get stressed. Note any self-talk statements you make on the basketball court when you get stressed and ask yourself whether these beliefs have any rational basis.
b. Practise dealing witht the two stressors using the imagery script, described on Homework Sheet 3A, for 20 minutes at least once every day. First, imagine missing an easy basket, and then imagine losing possession of the ball to an opponent. After each situation has occurred use the relaxation technique to control your emotional response.
c. Place your coloured adhesive dots on prominent everyday objects in your environment (e.g., home or office). Whenever you see one of them say "stop!" and then scan your body for any tension and say "relax" to calm yourself down.
d. Begin using the above coping routine whenever you play in basketball games.
e. Keep a record of your coping skill practice sessions by completing the Training Diary Sheet 3C every day.

HOMEWORK SHEET 3A

Coping with Stressors Script

Instructions: The purpose of this homework assignment is to allow you to practise coping with two stressful situations that occur regularly in basketball. You will do this using imagery. You will imagine the stressors happening, hear yourself making negative self-statements, and feel your emotions rising. You will then use thought-stoppage and relaxation techniques to calm yourself down. Practise this script at least once a day for 20 minutes.

1. Once again, find a quiet place where no distractions exist. If any distractions or anxiety-producing thoughts occur simply let them wash over you. Get comfortable. If you are sitting in a chair make sure that it provides full support for your entire body or if lying on the floor, place your arms by your sides.

2. Now, take a deep breath.....and "relax".....let it out slowly.....and become as relaxed as you can.....take 4 more breaths to relax yourself before we begin.

3. Imagine that you are holding a lemon. It is in your right hand. You have taken it from the fridge. You can feel the coolness and waxy texture of its yellow skin. Bring it to your nose. What can you smell? Now cut it with a knife. Look at it carefully. Hold one half of the lemon in your left hand and squeeze it. Bring the lemon to your mouth and suck on it. Taste its sour flavour and feel one of the seeds in your mouth. Now imagine that the lemon has become a basketball.

4. Imagine that you have just arrived at the stadium or centre where you usually play basketball games. See yourself arriving and walking through the main entrance. See the things on the walls an on the floor that you normally see. Look at the colours of these things, the colours of chairs, carpet or tiles. There are other people there. Look at them, the clothes they have on, their body positions. Hear them talking, watch their movements as they talk with their friends. What other sounds can you here?..... Are other people playing on courts?..... Perhaps you can hear the sounds of electric buzzers, the bounce of balls, the sounds of people running. Can you smell anything ? ..... Are there any smells coming from the tuckshop?..... Be as detailed as you can with your imagery. Use all of your senses.....You see your teammates beside one of the courts. You walk over to them and exchange greetings. What do you say to them? .....You all begin to get changed for the game.....Open your bag and get your strip out. Get changed the way you normally do. Do it step by step. As you sit down to pull your shoes and socks on feel the cold hard bench under you. Continue to follow the exact routine that you normally follow before a game.....the other team arrives .....you are looking at them.....what are you thinking?.....what are your teammates saying amongst themselves?.....you and your teammates walk on to the court for your pregame warm-up drills. The ball is in your hands..... examine it closely.....its colour, seams, texture, and any other details you can imagine ..... turn the ball over in your hands.....toss it up in the air and catch it a few times ..... bounce it on the floor and feel the pressure in your hands as you bounce it and as it returns to your hands.....hear it hitting the floor.....pass it to a teammate.....go through your warm-up drills.....see it happening.....feel it happening.....feel yourself moving around the court, passing the ball, receiving the ball, shooting, calling for the ball.....continue to warm up.....

5. *Stressor One:*

The game is underway. It has been a close game all night. Both teams are evenly matched. Your team has possession of the ball from the back court. The guards are dribbling the ball down the court.....as a forward you have run down the court and positioned yourself at the baseline.....one of the guards has the ball now at the top of the key.....you move towards the basket dragging your defender with you.....you stretch out both of your arms and receive the ball level with the free throw line.....you feel good.....you decide to take the man 1 on 1.....you pivot around on your right foot, protecting the ball with your elbows.....you fake with your left foot away from the basket and then quickly come back in around the defensive player for a baseline drive to the basket.....you dribble bouncing the ball once and you take a left step, a right step, and then you drive up to the basket.....you can feel the muscles in your calves contracting as you push off the floor.....feel your body stretching.....after making the shot you float underneath the basket confident that the shot has gone in.....you land and then realise that you missed the lay-up.....you are feeling angry for having missed the basket.....begin feeling your frustrations at having missed the lay-up.....you are criticising yourself with negative self-talk.....hear what you are saying to yourself .....feel your emotions beginning to well up inside of you.....it was an easy lay-up and you missed it.....you have let your teammates down, feel your embarrasment .....feel your disappointment.....feel your frustration.....focus on the stressful feelings you are experiencing because you missed the lay-up.....feel your feelings grow bigger.....and bigger.....it's alright to let them grow bigger ..... concentrate on your negative self-talk.....this makes your feelings grow even stronger.....and stronger.....I want you to really get in touch with these feelings .....let them grow.....think of all the worst possible scenarios that could occur because you missed the lay-up.....let the incident grow completely out of proportion .....let your feelings run rampant, let them grow and grow.....it's alright for your feelings to get stronger because soon you will see how easy it is to turn them off.....feel these stressful feelings....."STOP!".....switch off the negative self-talk.....cut off the stressful feelings you are experiencing.....now you are going to use your relaxation technique to relax and reduce those stressful feelings.....

6. Focus your attention on your forehead.....starting with this area, slowly scan downward over your body and when you find areas of tension focus on these areas .....inhale and....."relax".....imagine the tension slowly melting and draining down and out of your body and being replaced with a sense of deep relaxation .....continue scanning down your body looking for tension areas.....inhale and....."relax"..make sure you say the word "relax" everytime you exhale ..... continue this process until all the tension has melted away.....you are no longer feeling stressed about the missed lay-up.....you are feeling relaxed and ready to switch your focus back to the game.....

7. *Stressor Two:*

This time you will imagine losing possesion of the ball to an opponent. Your team has possession of the ball from the baseline after your opponents scored two points. As a forward you have run down to your team's attacking end..... as you run down the court a player on the other team tags you. You move around trying to lose this player who is playing one on one on you..... you continue to try and lose this player as you wish to receive the ball so that your team can begin an offensive play.....you signal with your left hand and at the same time you try to fake so as to lose your man..... confident that you are in the clear you prepare to receive the ball.....you receive a good pass from the guard.....but suddenly the player who was shadowing you steps inside of you, intercepts the pass from your teammate and dribbles down the court to score an easy basket for his team.....you begin to feel angry with yourself for allowing the other team an easy turnover.....begin feeling your frustrations at having lost possession of the ball.....begin feeling your frustrations at having lost the ball ....you are criticising yourself with negative self-talk.....hear what you are saying to yourself

.....feel your emotions beginning to well up inside of you .....it was a good pass and you missed it.....you have let your teammates down, feel your embarrasment .....feel your disappointment.....feel your frustration.....focus on the stressful feelings you are experiencing because you failed to receive the pass.....feel your feelings grow bigger.....and bigger.....it's alright to let them grow bigger .....concentrate on your negative self-talk.....this makes your feelings grow even stronger.....and stronger.....I want you to really get in touch with these feelings .....let them grow.....think of all the worst possible scenarios that could occur because you lost possession of the ball to your opponent.....let the incident grow completely out of proportion.....let your feelings run rampant, let them grow and grow.....it's alright for your feelings to get stronger because soon you will see how easy it is to turn them off.....feel these stressful feelings ..... "STOP!" .....switch off the negative self-talk.....cut off the stressful feelings you are experiencing.....now you are going to use your relaxation technique to relax and reduce those stressful feelings.....

8. Focus your attention on your forehead.....starting with this area, slowly scan downward over your body and when you find areas of tension focus on these areas .....inhale and....."relax".....imagine the tension slowly melting and draining down and out of your body and being replaced with a sense of deep relaxation ..continue scanning down your body looking for tension areas.....inhale and ....."relax"...make sure you say the word "relax" everytime you exhale .....continue this process until all the tension has melted away.....you are no longer feeling stressed about losing possession of the ball.....you are feeling relaxed and ready to switch your focus back to the game.....

TRAINING DIARY SHEET 3B

Checklist for Stress and Anxiety Indicators

Instructions: Complete this checklist every day. Identify one situation each day of the week either in basketball or in every day life when you get stressed. For each situation tick the stress signals you used at the time.

	Situation						
Stress Signals	1	2	3	4	5	6	7
Hand clenches	–	–	–	–	–	–	–
Moving body part continuously: foot...	–	–	–	–	–	–	–
Headache	–	–	–	–	–	–	–
Neck tenses	–	–	–	–	–	–	–
Backache	–	–	–	–	–	–	–
Shaking hands, tremors	–	–	–	–	–	–	–
Heart pounding or racing	–	–	–	–	–	–	–
Chewing fingernails	–	–	–	–	–	–	–
Excessive sweating	–	–	–	–	–	–	–
Shortness of breath	–	–	–	–	–	–	–
Restless hands or legs	–	–	–	–	–	–	–
Insomnia, disrupted sleep	–	–	–	–	–	–	–
Dry mouth	–	–	–	–	–	–	–
Can't concentrate	–	–	–	–	–	–	–
Negative thoughts	–	–	–	–	–	–	–
Mind racing	–	–	–	–	–	–	–
Having self-doubts	–	–	–	–	–	–	–
Feeling irritable	–	–	–	–	–	–	–

Self-Talk in Basketball Inventory

Instructions: First, in one sentence describe the situation in which you were stressed. Then, for each of these situations write down what sort of things you were saying to yourself at the time that made you anxious. Explore the rationality of these beliefs.

Stressor 1:	Stressor 2:	Stressor 3:	Stressor 4:	Stressor 5:	Stressor 6:	Stressor 7:
Self-Talk:	Self-Talk:	Self-Talk:	Self-Talk:	Self-Talk:	Self-Talk:	Self-Talk:

TRAINING DIARY SHEET 3C

Date: .....

Quick Body Scan Relaxation

1. How many times did you use the coping routine during the day? .....

2. Could you interrupt your negative self-talk when you said "stop!" 1 2 3 4 5 6 7
(1=not at all, 7=very much so)

3. How relaxed were you after using the quick body scan technique? 1 2 3 4 5 6 7
(1=not relaxed at all, 7=extremely relaxed)

Quick Body Scan Relaxation and Imagery

4. Length of practice session using Coping with Stressors script: .....

5. How vivid were your images? 1 2 3 4 5 6 7
(1=not vivid at all, 7=extremely vivid)

6. How much difficulty did you have controlling your images? 1 2 3 4 5 6 7
(1=not difficult at all, 7=extremely difficult)

7. How well could you feel the movements of your body? 1 2 3 4 5 6 7
(1=not well at all, 7=extremely well)

8. How strong were your emotions just before you said "stop!"? 1 2 3 4 5 6 7
(1=not strong at all, 7=extremely strong)

9. Could you interrupt your negative self-talk when you said "stop!"? 1 2 3 4 5 6 7
(1=not at all, 7=very much so)

10. How relaxed were you after using the quick body scan technique? 1 2 3 4 5 6 7
(1=not relaxed at all, 7=extremely relaxed)

Additional comments.

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Workshop 4

Self-Talk Statements to Reduce Stress (Approachers)

1. Homework

a. Identifying stressful situations in basketball, stress indicators, and self-talk (Training Diary Sheet 3A).
Imagery of the stressful situations. Vividness, controllability, self-perception, internal?
Induced affect. Negative self-talk? Rising emotions?
Thought stoppage cue. Effectiveness in stopping the negative self-talk?
Relaxation technique. Effectiveness in calming you down?
Coping routine. Did you use your coping routine during stressful encounters? Effective?
b. Examine Training Diary Sheet 3C.

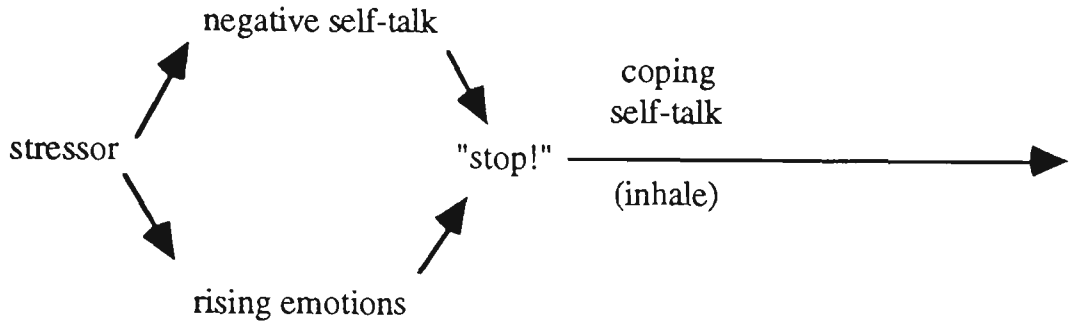
2. Replacing Negative Self-Talk with Task-Oriented Self-Talk

a. Make a list of the negative statements you make to yourself in response to the following two stressors: missing an easy basket, and losing possession of the ball to an opponent.
b. For each one of these negative statements replace it with a task-oriented statement concerned with one of the following: a statement describing the correct technique you should have used, a statement describing another play option you might have used, or a positive self-statement related to the stressor.
c. Reduce these alternative statements to a couple of key words that are meaningful to you. The following table contains example replacement statements made in response to one of the stressors.

Example Stressor: Missing an Easy Basket

Negative Self-Talk	Task-Oriented Self-Talk	Key Words
That was a stupid mistake	Next time I'll use soft fingers and get it	Soft fingers
You idiot	It's fine. I'm getting better	Getting better
I can't drop these baskets in games	From now on I'll shoot like I do in training	Like training
Hopeless, we'll lose this	Focus on following through next time	Follow through
No one gives me any support	I'll pass the ball earlier next time	Pass earlier
Hell, I'm too tired to give a damn	Next time I'll be strong to the end and stretch more	Strong stretch
Why do I always stuff up the easy shots?	Next time I'll get it	Next time

3. Summary of Workshop



4. **Homework**

a. Make a list of 5 task-oriented statements for each of the two stressors. Reduce these to a list of meaningful key words. These are the key words you will select from when responding to the stressors during your imagery sessions.
b. Practise dealing with the two stressors using the script described on Homework Sheet 4A for 20 minutes at least once every day. First, imagine missing an easy basket, and then imagine losing possession of the ball to an opponent. After each situation has occurred use your self-talk key words to control your emotional response.
c. Change the colour of your adhesive dots. This time when you see one of them say "stop!" and then say your task-oriented self-talk key words as you inhale.
d. Begin using the above coping routine whenever you play in basketball games.
e. Keep a record of your coping skill practice sessions using the Training Diary Sheet 4B every day.

Workshop 4

Self-Talk Statements to Reduce Stress (Avoiders)

1. Homework

a. Identifying stressful situations in basketball, stress indicators, and self-talk (Training Diary Sheet 3A).
Imagery of the stressful situations. Vividness, controllability, self-perception, internal?
Induced affect. Negative self-talk? Rising emotions?
Thought stoppage cue. Effectiveness in stopping the negative self-talk?
Relaxation technique. Effectiveness in calming you down?
Coping routine. Did you use your coping routine during stressful encounters? Effective?
b. Examine Training Diary Sheet 3C.

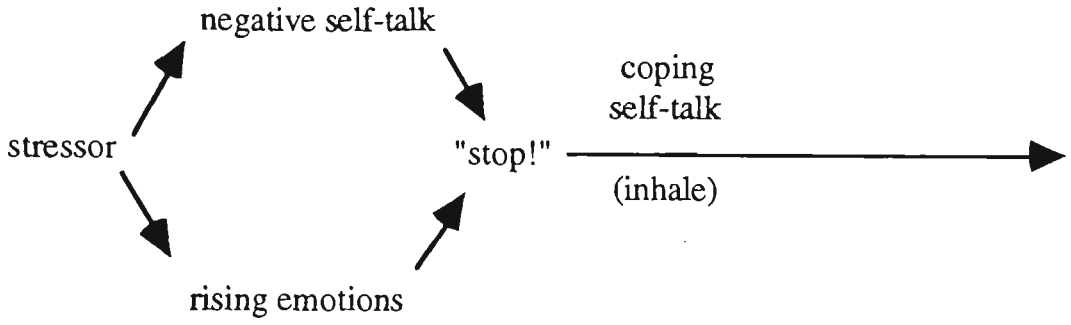
2. Replacing Negative Self-Talk with Avoidance-Oriented Self-Talk

a. Make a list of the negative statements you make to yourself in response to the following two stressors: missing an easy basket, and losing possession of the ball to an opponent.
b. For each one of these negative statements replace it with an avoidance-oriented statement concerned with one of the following: a reappraisal statement where you consider the stressful situation in a different light, a parking statement where you decide to put the error out of your mind, or a discounting statement where you reduce the importance of the stressor.
c. Reduce these alternative statements to a couple of key words that are meaningful to you. The following table contains example replacement statements made in response to one of the stressors.

Example Stressor: Missing an Easy Basket

Negative Self-Talk	Avoidance-Oriented Self-Talk	Key Words
That was a stupid mistake	Things could be much worse	Could be worse
You idiot	Park it and focus on the game	Park it
I can't drop these baskets in games	I'm just having bad luck	Bad luck
Hopeless, we'll lose this	The game isn't decided on one mistake	Just one mistake
No one gives me any support	What's happened has happened so forget it	Forget it
Hell, I'm too tired to give a damn	Play to the end of the game	Play it out
Why do I always stuff up the easy shots?	That shot wasn't as easy as it seemed	Hard shot

3. Summary of Workshop



4. **Homework**

a. Make a list of 5 avoidance-oriented statements for each of the two stressors. Reduce these to a list of meaningful key words. These are the key words you will select from when responding to the stressors during your imagery sessions.
b. Practise dealing with the two stressors using the script described on Homework Sheet 4A for 20 minutes at least once every day. First, imagine missing an easy basket, and then imagine losing possession of the ball to an opponent. After each situation has occurred use your self-talk key words to control your emotional response.
c. Change the colour of your adhesive dots. This time when you see one of them say "stop!" and then say your avoidance-oriented self-talk key words as you inhale.
d. Begin using the above coping routine whenever you play in basketball games.
e. Keep a record of your coping skill practice sessions using the Training Diary Sheet 4B every day.

HOMEWORK SHEET 4A

Coping with Stressors Script

Instructions: The purpose of this homework assignment is to allow you to practise coping with two stressful situations that occur regularly in basketball. You will do this using imagery. You will imagine the stressors happening, hear yourself making negative self-statements, and feel your emotions rising. You will then use thought-stoppage and your self-talk key words to calm yourself down. Practise this script at least once a day for 20 minutes.

1. Once again, find a quiet place where no distractions exist. If any distractions or anxiety-producing thoughts occur simply let them wash over you. Get comfortable. If you are sitting in a chair make sure that it provides full support for your entire body or if lying on the floor, place your arms by your sides.

2. Now, take a deep breath.....and "relax".....let it out slowly.....and become as relaxed as you can.....take 4 more breaths to relax yourself before we begin.

3. Take yourself to the stadium or centre where you usually play basketball. You and your teammates are walking on to the court for your pregame warm-up drills. The ball is in your hands.....examine it closely.....its colour, seams, texture, and any other details you can imagine.....turn the ball over in your hands.....toss it up in the air and catch it a few times.....bounce it on the floor and feel the pressure in your hands as you bounce it and as it returns to your hands.....hear it hitting the floor.....pass it to a teammate.....go through your warm-up drills.....see it happening.....feel it happening .....feel yourself moving around the court, passing the ball, receiving the ball, shooting, calling for the ball.....continue to warm up.....

4. *Stressor One:*

The game is underway. It has been a close game all night. Both teams are evenly matched. Your team has possession of the ball from the back court. The guards are dribbling the ball down the court.....as a forward you have run down the court and positioned yourself at the baseline.....one of the guards has the ball now at the top of the key.....you move towards the basket dragging your defender with you.....you stretch out both of your arms and receive the ball level with the free throw line.....you feel good.....you decide to take the man 1 on 1.....you pivot around on your right foot, protecting the ball with your elbows.....you fake with your left foot away from the basket and then quickly come back in around the defensive player for a baseline drive to the basket.....you dribble bouncing the ball once and you take a left step, a right step, and then you drive up to the basket.....you can feel the muscles in your calves contracting as you push off the floor.....feel your body stretching.....after making the shot you float underneath the basket confident that the shot has gone in.....you land and then realise that you missed the lay-up.....you are feeling angry for having missed the basket.....begin feeling your frustrations at having missed the lay-up.....you are criticising yourself with negative self-talk.....hear what you are saying to yourself .....feel your emotions beginning to well up inside of you.....it was an easy lay-up and you missed it.....you have let your teammates down, feel your embarrasment .....feel your disappointment.....feel your frustration.....focus on the stressful feelings you are experiencing because you missed the lay-up.....feel your feelings grow bigger.....and bigger.....it's alright to let them grow bigger ..... concentrate on your negative self-talk.....this makes your feelings grow even stronger.....and stronger.....I want you to really get in touch with these feelings .....let them grow.....think of all the worst possible scenarios that could occur

because you missed the lay-up.....let the incident grow completely out of proportion .....let your feelings run rampant, let them grow and grow.....it's alright for your feelings to get stronger because soon you will see how easy it is to turn them off .....feel these stressful feelings....."STOP!".....switch off the negative self-talk.....cut off the stressful feelings you are experiencing.....now you are going to use your self-talk key words to calm yourself down and reduce those stressful feelings.....

5. As you inhale say your key words and feel the stressful feelings begin to subside .....Continue to repeat your key words.....really think about what they mean .....think about what they are saying to you.....they are saying that you should not be worrying about the error .....keep saying them until all the tension has melted away. .....you are no longer feeling stressed about the error.....you are feeling relaxed and ready to switch your focus back to the game.....

6. *Stressor Two:*

This time you will imagine losing possesion of the ball to an opponent. Your team has possession of the ball from the baseline after your opponents scored two points. As a forward you have run down to your team's attacking end..... as you run down the court a player on the other team tags you. You move around trying to lose this player who is playing one on one on you..... you continue to try and lose this player as you wish to receive the ball so that your team can begin an offensive play.....you signal with your left hand and at the same time you try to fake so as to lose your man..... confident that you are in the clear you prepare to receive the ball.....you receive a good pass from the guard.....but suddenly the player who was shadowing you steps inside of you, intercepts the pass from your teammate and dribbles down the court to score an easy basket for his team.....you begin to feel angry with yourself for allowing the other team an easy turnover.....begin feeling your frustrations at having lost possession of the ball.....begin feeling your frustrations at having lost the ball .... you are criticising yourself with negative self-talk.....hear what you are saying to yourself.....feel your emotions beginning to well up inside of you .....it was a good pass and you missed it.....you have let your teammates down, feel your embarrasment.....feel your disappointment.....feel your frustration.....focus on the stressful feelings you are experiencing because you failed to receive the pass.....feel your feelings grow bigger.....and bigger.....it's alright to let them grow bigger .....concentrate on your negative self-talk.....this makes your feelings grow even stronger.....and stronger.....I want you to really get in touch with these feelings .....let them grow.....think of all the worst possible scenarios that could occur because you lost possession of the ball to your opponent.....let the incident grow completely out of proportion.....let your feelings run rampant, let them grow and grow.....it's alright for your feelings to get stronger because soon you will see how easy it is to turn them off.....feel these stressful feelings ..... "STOP!" .....switch off the negative self-talk.....cut off the stressful feelings you are experiencing.....now you are going to use your self-talk key words to calm yourself down and reduce those stressful feelings.....

7. As you inhale say your key words and feel the stressful feelings begin to subside. .....Continue to repeat your key words every time you inhale.....really think about what they mean.....think about what they are saying to you.....they are saying that you should not be worrying about the error .....keep saying them until all the tension has melted away.....you are no longer feeling stressed about the error.....you are feeling relaxed and ready to switch your focus back to the game.....

TRAINING DIARY SHEET 4B

Date: .....

Self-Talk Key Words

1. How many times did you use the coping routine during the day/in games? .....
2. Could you interrupt your negative self-talk when you said "stop!"? 1 2 3 4 5 6 7
   (1=not at all, 7=very much so)
3. How relaxed were you after saying your self-talk key word? 1 2 3 4 5 6 7
   (1=not relaxed at all, 7=extremely relaxed)

Imagery and Self-Talk Key Words

4. Length of practice session using Coping with Stressors script: .....
5. How vivid were your images? 1 2 3 4 5 6 7
   (1=not vivid at all, 7=extremely vivid)
6. How much difficulty did you have in controlling your images? 1 2 3 4 5 6 7
   (1=not difficult at all, 7=extremely difficult)
7. How well could you feel the movements of your body? 1 2 3 4 5 6 7
   (1=not well at all, 7=extremely well)
8. How strong were your emotions just before you said "stop!"? 1 2 3 4 5 6 7
   (1=not strong at all, 7=extremely strong)
9. Could you interrupt your negative self-talk when you said "stop!"? 1 2 3 4 5 6 7
   (1=not at all, 7=very much so)
10. How relaxed were you after saying your self-talk key word? 1 2 3 4 5 6 7
    (1=not relaxed at all, 7=extremely relaxed)

Additional comments.

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Workshop 5

The Final Coping Routine

1. Homework

Examine Training Diary Sheet 4B.
Imagery of the stressful situations. Vividness, controllability, self-perception, internal?
Induced affect. Negative self-talk? Rising emotions?
Thought stoppage cue. Effectiveness in stopping the negative self-talk?
Self-talk. Did you say your key words while inhaling? Did they help calm you?
Coping routine. Did you use your coping routine during basketball games? Effectiveness?

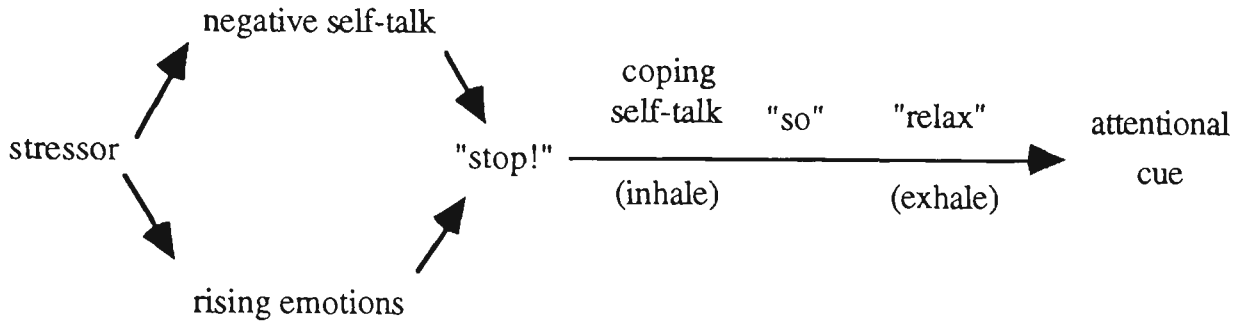
2. Concentration Through Attentional Focus

a. Concentration is the ability to focus on the relevant cues in your environment.
b. Attention consists of two dimensions, width and dimension:
   i. Broad-external - getting ready as a guard initiates a fast break.
   ii. Broad-internal - from a sideline position you are planning what to do with the ball.
   iii. Narrow-external - watching the ball as it is passed to you.
   iv. Narrow-internal - mentally rehearsing a free throw from the line.
c. Attentional problems due to poor focus ability.
   attending to too many cues — attending to future events
   attending to past incidents — paralysis by analysis
d. Ways to improve concentration following mistakes.
   think present all the time — use cue words
   follow a coping routine — carry out your decisions without hesitation
   turn failure into success

3. Attentional Cues

Statement	Cue Word/s
I must pick up my man, number "8"	My man, "8"
I must stay loose	Loose, space
My teammates need support	Support, backup
Arms up for defence	Arms up
Back on defence, to the baseline	Baseline
Palms up when defending	Palms up
Hustle up on to your man	Hustle up

4. Summary of Workshop



5. **Homework**

a. Practise the entire coping routine using the imagery script described on Homework Sheet 5A at least once a day for 10 minutes each time.
b. Use your coping routine at every opportunity when playing in basketball games.
c. Keep a record of your coping skills practice sessions by completing the Training Diary Sheet 5B every day.
d. Complete the 3 Game Questionnaires over the following three weeks. Also, be sure to answer the questions on the Program Evaluation Form after you have completed the last game questionnaire. When you have completed all of these forms place them in the prepaid envelope and return it to me. Thankyou.

HOMEWORK SHEET 5A

Coping with Stressors Script

Instructions: The purpose of this homework assignment is to allow you to practise coping with two stressful situations that occur regularly in basketball. You will do this using imagery. You will imagine the stressors happening, hear yourself making negative self-statements, and feel your emotions rising. You will then use the entire coping routine to calm yourself down and refocus on the game. Practise this script at least once a day for 10 minutes.

1. Once again, find a quiet place where no distractions exist. If any distractions or anxiety-producing thoughts occur simply let them wash over you. Get comfortable. If you are sitting in a chair make sure that it provides full support for the entire body or if lying on the floor, place your arms by your sides.

2. Now, take a deep breath.....and "relax".....let it out slowly.....and become as relaxed as you can.....take 4 more breaths to relax yourself before we begin.

3. *Stressor One:*

The game is underway. It has been a close game all night. Both teams are evenly matched. Your team has possession of the ball from the back court. The guards are dribbling the ball down the court.....as a forward you have run down the court and positioned yourself at the baseline.....one of the guards has the ball now at the top of the key.....you move towards the basket dragging your defender with you.....you stretch out both of your arms and receive the ball level with the free throw line.....you feel good.....you decide to take the man 1 on 1.....you pivot around on your right foot, protecting the ball with your elbows.....you fake with your left foot away from the basket and then quickly come back in around the defensive player for a baseline drive to the basket.....you dribble bouncing the ball once and you take a left step, a right step, and then you drive up to the basket.....you can feel the muscles in your calves contracting as you push off the floor.....feel your body stretching.....after making the shot you float underneath the basket confident that the shot has gone in.....you land and then realise that you missed the lay-up.....you are feeling angry for having missed the basket.....begin feeling your frustrations at having missed the lay-up.....you are criticising yourself with negative self-talk.....hear what you are saying to yourself .....feel your emotions beginning to well up inside of you.....it was an easy lay-up and you missed it.....you have let your teammates down, feel your embarrasment .....feel your disappointment.....feel your frustration.....focus on the stressful feelings you are experiencing because you missed the lay-up.....feel your feelings grow bigger.....and bigger.....it's alright to let them grow bigger ..... concentrate on your negative self-talk.....this makes your feelings grow even stronger.....and stronger.....I want you to really get in touch with these feelings .....let them grow.....think of all the worst possible scenarios that could occur because you missed the lay-up.....let the incident grow completely out of proportion .....let your feelings run rampant, let them grow and grow.....it's alright for your feelings to get stronger because soon you will see how easy it is to turn them off .....feel these stressful feelings....."STOP!".....switch off the negative self-talk.....cut off the stressful feelings you are experiencing.....now you are going to use your coping routine to calm yourself down and reduce those stressful feelings.....

4. As you inhale say your key words and begin to feel the stressful feelings subside .....at the top of your inhalation say the word "so" and now slowly exhale ....."relax".....feel all of tension melt away.....you are no longer feeling stressed about the error.....you are feeling relaxed and ready to switch your focus back to the game.....say your refocus cue and return to the game.....

5. *Stressor Two:*

This time you will imagine losing possesion of the ball to an opponent. Your team has possession of the ball from the baseline after your opponents scored two points. As a forward you have run down to your team's attacking end..... as you run down the court a player on the other team tags you. You move around trying to lose this player who is playing one on one on you..... you continue to try and lose this player as you wish to receive the ball so that your team can begin an offensive play.....you signal with your left hand and at the same time you try to fake so as to lose your man..... confident that you are in the clear you prepare to receive the ball.....you receive a good pass from the guard.....but suddenly the player who was shadowing you steps inside of you, intercepts the pass from your teammate and dribbles down the court to score an easy basket for his team.....you begin to feel angry with yourself for allowing the other team an easy turnover.....begin feeling your frustrations at having lost possession of the ball.....begin feeling your frustrations at having lost the ball .... you are criticising yourself with negative self-talk.....hear what you are saying to yourself.....feel your emotions beginning to well up inside of you .....it was a good pass and you missed it.....you have let your teammates down, feel your embarrasment.....feel your disappointment.....feel your frustration.....focus on the stressful feelings you are experiencing because you failed to receive the pass.....feel your feelings grow bigger.....and bigger.....it's alright to let them grow bigger .....concentrate on your negative self-talk.....this makes your feelings grow even stronger.....and stronger.....I want you to really get in touch with these feelings .....let them grow.....think of all the worst possible scenarios that could occur because you lost possession of the ball to your opponent.....let the incident grow completely out of proportion.....let your feelings run rampant, let them grow and grow.....it's alright for your feelings to get stronger because soon you will see how easy it is to turn them off.....feel these stressful feelings ..... "STOP!" .....switch off the negative self-talk.....cut off the stressful feelings you are experiencing.....now you are going to use your coping routine to calm yourself down and reduce those stressful feelings.....

6. As you inhale say your key words and begin to feel the stressful feelings subside .....at the top of your inhalation say the word "so" and now slowly exhale ....."relax".....feel all of tension melt away.....you are no longer feeling stressed about the error.....you are feeling relaxed and ready to switch your focus back to the game.....say your refocus cue and return to the game.....

TRAINING DIARY SHEET 5B

Date: .....

Final Coping Routine using Imagery

1. Length of practice session using Coping with Stressors script: .....

2. How vivid were your images? 1 2 3 4 5 6 7
(1=not vivid at all, 7=extremely vivid)

3. How much difficulty did you have in controlling your images? 1 2 3 4 5 6 7
(1=not difficult at all, 7=extremely difficult)

4. How well could you feel the movements of your body? 1 2 3 4 5 6 7
(1=not well at all, 7=extremely well)

5. How strong were your emotions just before you said "stop!"? 1 2 3 4 5 6 7
(1=not strong at all, 7=extremely strong)

6. Could you interrupt your negative self-talk when you said "stop!"? 1 2 3 4 5 6 7
(1=not at all, 7=very much so)

7. How relaxed were you after saying your self-talk key words? 1 2 3 4 5 6 7
(1=not relaxed at all, 7=extremely relaxed)

8. How relaxed were you after saying "relax"? 1 2 3 4 5 6 7
(1=not relaxed at all, 7=extremely relaxed)

9. Did your attentional cue help you to refocus on the game? 1 2 3 4 5 6 7
(1=not at all, 7=very much so)

10. How many times did you use the coping routine during the day/in games? .....

Final Coping Routine in Games

11. Could you interrupt your negative self-talk when you said "stop!"? 1 2 3 4 5 6 7
(1=not at all, 7=very much so)

12. How relaxed were you after saying your self-talk key words? 1 2 3 4 5 6 7
(1=not relaxed at all, 7=extremely relaxed)

13. How relaxed were you after saying "relax"? 1 2 3 4 5 6 7
(1=not relaxed at all, 7=extremely relaxed)

14. Did your attentional cue help you to refocus on the game? 1 2 3 4 5 6 7
(1=not at all, 7=very much so)

Additional comments.

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PROGRAM EVALUATION FORM

How useful were the workshops?

Instructions: Answer each question by circling a number in the right hand column. Extreme values are indicated after each question. For example, responses for Question 1b range from 1 (not strong at all) to 7 (extremely strong).

Questions	Rating
1. When practising your coping routine through imagining stressful situations:	
a. How vivid are your images? (1=not vivid at all, 7=extremely vivid)	1 2 3 4 5 6 7
How much difficulty do you have in controlling your images? (1=not difficult at all, 7=extremely difficult)	1 2 3 4 5 6 7
How well can you feel the movements of your body? (1=not well at all, 7=extremely well)	1 2 3 4 5 6 7
b. How strong are your emotions just before you say "stop!"? (1=not strong at all, 7=extremely strong)	1 2 3 4 5 6 7
c. Can you interrupt your negative self-talk when you say "stop!"? (1=not at all, 7=very much so)	1 2 3 4 5 6 7
d. How relaxed are you after saying your self-talk key words? (1=not relaxed at all, 7=extremely relaxed)	1 2 3 4 5 6 7
e. How relaxed are you after saying "relax"? (1=not relaxed at all, 7=extremely relaxed)	1 2 3 4 5 6 7
f. Does your attentional cue help you to refocus on the game? (1=not at all, 7=very much so)	1 2 3 4 5 6 7
2. Do you understand how your coping routine is meant to help you? (1=not at all, 7=very much so)	1 2 3 4 5 6 7
3. How well have you learnt your coping routine? (1=not well at all, 7=extremely well)	1 2 3 4 5 6 7
4. Do you feel comfortable using your coping routine in basketball games? (1=uncomfortable, 7=completely comfortable)	1 2 3 4 5 6 7
5. How often do you use your coping routine in basketball games? (1=not used at all, 7=used all the time)	1 2 3 4 5 6 7
6. How effective is your coping routine in reducing your feelings of stress during basketball games? (1=not effective at all, 7=extremely effective)	1 2 3 4 5 6 7

APPENDIX G

Worksheets for Placebo-Control Subjects

SPORT PSYCHOLOGY WORKSHOPS

OVERVIEW

Workshop 1

Characteristics of Successful Athletes

Psychological characteristics of peak performance in sport
Completing the Profile of Mood State Questionnaire
Exploring the indicators of an overtraining state and its subsequent treatment

Workshops 2 and 3

Goal Setting

The benefits of goal setting for athletes
Characteristics of goals and common problems experienced
Exercises in effective goal setting

Workshop 4

The Athlete and the Rehabilitation Process

Psychological stages following an injury
How to recover from an injury in the least possible time and with the greatest effectiveness
An imagery exercise to aid the healing process

Workshop 5

Team Building

How a team is typically formed
Completing The Group Environment Questionnaire
Factors contributing to improved team cohesion
Ways of enhancing team cohesion

Workshop 1

Characteristics of Successful Athletes

1. The Ideal Performance State (IPS)

   "A measurably different mental or psychological state exists when an athlete is performing well, as opposed to when he or she is performing poorly" (Loehr, 1986, p. 24).

2. Psychological Characteristics of Peak Performance

physically relaxed	effortless
mentally calm	automatic
low anxiety	alert
energised	mentally focused
optimistic	self confident
enjoyment	in control

3. The Profile of Mood States (POMS) (McNair, Lorr, & Droppleman, 1971)

   This psychological tool measures six transitory affective states including tension, depression, anger, vigor, fatigue, and confusion. Successful athletes have been found to differ psychologically from unsuccessful athletes. The psychological mood states typically associated with top-level athletic performance is called an "iceberg profile." This means that more successful athletes tend to score high on vigor and low on anxiety, depression, anger, fatigue, and confusion. However, the POMS has also been used to indicate the possible onset of athletic overtraining. Such athletes reveal an inverted iceberg profile.

4. Physiological Indicators of Overtraining

higher resting heart rate	delayed return to normal heart rate
higher systolic blood pressure	elevated basal metabolic rate
weight loss	elevated body temperature
bowel disorders	

5. Psychological Indicators of Overtraining

sleep disturbances	lack of appetite	anxiety
loss of self-confidence	fatigue	anger and hostility
quarrelsomeness	loss of vigor	confusion
irritability	depression	

6. Prevention and Treatment of Overtraining

a. Establish a well balanced and gradually increasing training schedule. Alternate days of intense work with days consisting of endurance activities at a relatively low intensity.
b. The number of high intensity anaerobic sessions should not exceed three per week so as to allow time for the replenishment of muscle glycogen depleted with training.
c. Consider nutritional aspects of training. Ensure 50-60% of your daily diet is supplied by carbohydrates. To prevent iron deficiency ensure that your daily diet is rich in iron by consuming lean meat at least 2-3 times per week and eat iron-rich vegetables. Do not drink strong tea regularly as it interferes with iron absorption.
d. Establish goals for both practice and competition. Make sure these goals are short-term and fun, and give yourself a reward every time you achieve a goal.
e. Substitute fun activities for regular training sessions every now and then.
f. Ensure that you are involved in decisions involving your team.
g. Monitor physiological and psychological indicators of a possible overtraining syndrome by keeping a daily or weekly training diary. Record information such as resting heart rate, body weight, enthusiasm for training, occurrence of injuries, hours slept each night, and general mood.
h. Ensure that other areas of your lifestyle are not causing you undue stress. Factors include illness, academic work, professional work, rest and recovery, time socialising, and interpersonal relationships.

Workshops 2 and 3

Goal Setting

1. Purpose of Setting Goals

a. Goals direct the athlete's attention and efforts to important aspects of a task.
b. Goals encourage the athlete to put in greater efforts in attempting to achieve certain objectives.
c. Goals help prolong effort over longer periods of time.
d. Goals encourage athletes to develop and practise new learning strategies.

2. Guidelines for Setting Goals

a. Set performance goals as opposed to outcome goals.
b. Set short-term, intermediate, and long-term goals.
c. Set specific goals that are measureable.
d. Set realistic, yet challenging goals.
e. Set flexible goals.
f. Goals must be accepted by the athlete in order to be effective.
g. Set positive goals rather than negative goals.
h. Record goals once they have been identified.
i. Evaluate goals regularly.
j. Identify goal achievement strategies.

3. Common Problems in Setting Goals

a. Setting too many goals at the same time.
b. Setting goals that are too general.
c. Failing to modify unrealistic goals.
d. Failing to set performance goals.

4. Setting Your Own Goals

a. Perform a needs analysis in which you find out your present level of competence in various areas in your sport. Two ways in which you might do this are as follows:
(1) Complete a needs analysis questionnaire, for example, the Competitive Behavior Questionnaire (Harris & Harris, 1984). Once finished group similar items together. For example, put all the items related to learning skills in one group, and all the items related to physical fitness in another group.
(2) Write down on a piece of paper ten of your strengths and ten of your weaknesses in basketball. Once again, group similar items together.

b. Prioritise your items on a new sheet of paper. These are the tasks you will work on in practice. Now, in their separate groups rank all of these tasks. For example, the tasks numbered 1 are those that you wish to improve first.

c. In the next column write down the specific goal you wish to achieve related to each of these tasks.

d. In the next column write down the strategies you will use to achieve each of these goals.

e. In the next column write down target dates for attaining these goals.

f. In the final column write down your evaluation comments concerning these goals. Did you achieve your goal? What is your modified goal?

Sample Goal Setting Chart

Task	Specific Goal	Specific Strategy	Date	Comments
physical				
mental				
technical				
tactical				
environmental				
nutritional				

Workshop 4

The Athlete and the Rehabilitation Process

1. The Mind-Body Connection

a. An injury is accompanied by various emotions and physiological reactions.
b. In turn, these emotions cause the athlete to experience a secondary-stress syndrome that creates additional pain and fear. This new stress reduces blood to the injured area and keeps the muscle tense. These reactions prolong the recovery process.

2. Psychological Reactions to Injury

a. Denial: "No, not me....there's no problem.....it'll go away."
b. Anger: "Why me.....why now, damn it ?"
c. Bargaining: "If I recover, I'll never....."
d. Depression: Realising that nothing can be done, the athlete may withdraw and focus on self-pity.
e. Acceptance: "I'm injured but I must go on with my life." Healing usually occurs at this time.

3. Rehabilitation of the Injury

a. Understanding the injury. The athlete should endeavour to obtain information about the injury including specifics about the anatomy and physiology of the injured area. Thus, the abstraction of the injury is translated into more tangible terms understood by the athlete.
b. Specific adherence behaviours. The athlete should listen to the trainer, maintain a positive attitude, and increase intrinsic motivation.
c. Social support. The athlete should try to discuss the situation with others who have experienced similar injuries, with friends, and with family members. This will help release tension and anxiety and provide the athlete with encouragement.
d. Goal setting. It is very important that the athlete has an orientation towards task-related goals related to basketball. Realistic short-term and daily goals should be set, and athletes should visualise themselves attaining their goals.
e. Mental imagery. Positive images of healing, as well as images of being fully recovered, appear to eliminate the destructive panic-stress images in the mind. Since such images cause vasoconstriction, the elimination of these emotions through visualisation will allow normal blood flow to resume and relax the muscles in the injured area, facilitating healing. When using this rehabilitation strategy the athlete should visualise: (1) what is happening internally to the injury during recovery, (2) obstacles that may stand in the way of a successful return to competition, and (3) various basketball scenes from their past that produced positive, self-enhancing feelings.
f. Belief in the treatment. For intervention strategies to be effective in the rehabilitation process the athlete must believe in their efficacy and commit to them.

Sample Imagery Healing Script

1. Find a quiet place where no distractions exist. If cramping occurs in any muscles during the session move the affected muscles to alleviate the cramping, while allowing the rest of the body to remain as relaxed as possible. If any distractions or anxiety-producing thoughts occur simply let them wash over you. Do not try and hold on to them. Try not to fall asleep as you will be depriving yourself of an opportunity to get in touch with your body. Turn the lights off. Get comfortable. If you are sitting in a chair make sure that it provides full support for the entire body, so that as your muscles relax your limbs do not slip off the chair into uncomfortable positions. If lying on the floor, place your arms at your sides. Any tight clothing or belts should be loosened or removed.

2. Now, be still and close your eyes. Assume a restful position.....have a passive restful attitude.....take four deep breaths.....make each one deeper than the one before .....hold the first inhalation for 4 seconds.....the second one for 5 seconds.....the third one for 6 seconds.....and the fourth one for 7 seconds.....pull the tension from all parts of your body into your lungs and exhale it with each exhalation.....feel more relaxed with each breath.....now count backwards from 10 to 0.....breath naturally, and with each exhalation count one number and feel more relaxed as you approach 0 .....with each count you descend a relaxation stairway and become more deeply relaxed until you are totally relaxed at 0.

3. Now feel yourself slowly drifting down your body....from your head....down your neck.....you are going to the place that is injured. There is no hurry to get there though ...just drift there.....You have arrived. Spend the next few moments looking at the injured body part from the outside, from an external perspective.....There may be discolouration.....or a bump.....look at the area from all angles.....Now touch the body part softly, very softly....feel it....feel it.....you are now entering this injured place. Feel yourself moving through skin.....flesh.....muscle. Look around you at all of the blood vessels.....so much movement.....all around you.....You can now see the injured area . .....the damaged muscle fibres.....the broken capillaries.....a mass of fluid.....You are going to begin cleaning up this fluid and debris.....Envision cells mopping up the tissue debris.....all of the unwanted fluid is going.....you are making it go.....Feel the injured body part getting lighter as all of the fluid is mopped up.....Now watch the fibroblasts as they move in to repair the ends of the torn muscle ends.....watch them pulling the torn muscle ends together.....becoming a unit once more.....strength .....see the new rich blood entering the area to further repair the muscle and blood vessels.....it looks good.....beginning to feel stronger.....and warm.....feel the warmth as the new blood enters the area....what a great feeling.....The swelling is going down....watch it going down...feel the warmth.....enjoy the strength returning to the area. Continue watching and feeling this repairing process continuing for a few moments. .....

4. Now focus on your breathing....feel for any tightness areas and relax them.....now imagine the injured part of your body moving from a fully extended position to a fully flexed position.....feel how relaxed the injured area now feels.....there is no discomfort .....feel your whole body moving how you would like it to move.....loose and with no tightness but free.....good.....now imagine that you are fully recovered.....the injured area and the muscles surrounding it are strong and as flexible as they ever were.....you are relaxed and ready to resume participating in your competition.....now think of some skills in basketball that you would like to work on today.....feel yourself performing these skills to perfection and see what you would normally see.....feel the sensations in different parts of your body as you perorm the movements.....you are feeling stronger and stronger, flexible and more flexible..... you are healing quickly.....feel good about your progress.....feel good that you are doing everything possible to maintain your physical skills.....Take a deep breath.....in a moment you will leave this state of deep

relaxation and return to your normal level of functioning.....you will find that you will feel refreshed, energised and alert.....begin by stretching your arms and legs and wiggling your toes.....return your breathing to a more normal rhythm and when you are ready, open your eyes.....

Workshop 5

Team Building

1. Team Cohesion

"A dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of its goals and objectives" (Carron, 1982, p. 124).

2. Evolutionary Steps of Team Building

a. Forming. Group members get to know one another.
b. Storming. This stage is characterised by polarisation, conflict, and rebellion.
c. Norming. When the group comes together and cooperation is improved.
d. Performing. A close rapport is developed as the group directs its energies towards its goals.

3. Dimensions Associated with Team Cohesion

"Social cohesion reflects the degree to which the members of a team like each other and enjoy each other's company. Task cohesion reflects the degree to which members of a group work together to achieve a specific and identifiable task" (Cox, 1985, p. 271).

4. The Group Environment Questionnaire (GEQ) (Widmeyer, Brawley, & Carron, 1985)

The GEQ measures an individual group member's perceptions of team cohesiveness. Four measures of cohesiveness are assessed:

a. Individual attractions to group task. Reflects the team member's feelings about the attractiveness of the group task.
b. Individual attractions to group-social. Reflects the team member's feelings about the attractiveness of the group as a social unit.
c. Group integration-task. Reflects the team member's perceptions of the task oriented similarity, closeness, and bonding within the team as a whole.
d. Group integration-social. Reflects the team member's perceptions of the socially oriented similarity, closeness, and bonding within the team as a whole.

5. Factors Contributing to Improved Social Cohesion

players liking each other
players having similar personalities
players having similar social backgrounds
players' social needs met by being on team
group receives equal recognition
players becoming good friends off field
players feel accepted by teammates
small group size
players make similar causal attributions
democratic leadership style used

6. Factors Contributing to Improved Task Cohesion

players satisfied with their performance
players work together
players feel skills are improving
team meets frequently for practice
players assert team role amd team goals
players perceive roles as important
players understand path to team goals
team experiences consistent success

7. Ways of Enhancing Team Cohesion

a. Acquaint players with the responsibilities of their teammates.
b. Appropriate use of humour and praise to recognise player contributions.
c. Coaches should know each player reasonably well.
d. Goals should be based on performance, not only on outcome.
e. Each player should feel that he has an important role on the team.
f. Players should not be allowed to hurt the feelings of teammates.
g. Social cliques should be avoided.
h. Disciplining players should be consistent for all team members.
i. Excessive turnover of players to be minimal.
j. Encourage open communication between the coach and players.
k. Leadership should be developed among team members.
l. Encourage the development of a group identity through team jackets, chants, and the like.
m. Use periodic team meetings to resolve conflicts.
n. Develop pride and a sense of collective identity within the group by setting out realistic team, individual, and subunit goals.
o. Players should try to get to know one another.
p. Teammates should try to give positive feedback to each other at every opportunity.
q. Players should accept responsibility for both their successes and their failures, individually, and as a team.

PROGRAM EVALUATION FORM

How Useful Were the Workshops?

Instructions: For each of the workshops please rate how useful you found each to be by circling the appropriate number in the right hand column. The responses range from 1 (not useful at all) to 7 (extremely useful).

	Workshops	Rating
Workshop 1	Characteristics of Successful Athletes	1 2 3 4 5 6 7
Workshop 2	Goal Setting - I	1 2 3 4 5 6 7
Workshop 3	Goal Setting - II	1 2 3 4 5 6 7
Workshop 4	The Athlete and the Rehabilitation Process	1 2 3 4 5 6 7
Workshop 5	Team Building	1 2 3 4 5 6 7